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The World Bank

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Report No: 41212-HR

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$ 5.0 MILLION

TO

THE REPUBLIC OF CROATIA

FOR AN

AGRICULTURAL POLLUTION CONTROL PROJECT

November 13, 2007

Sustainable Development Unit
South East Europe Country Unit
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective October 26, 2007)

Currency Unit = Kuna (HRK)
5.438 HRK = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACCP	Agricultural Acquis Cohesion Project
AE	Agri-environment
BSEP	Black Sea Environmental Program
CAEI	Croatian Agricultural Extension Institute
CAP	Common Agricultural Policy
CARDS	Community Assistance for Reconstruction, Development and Stabilization
CAS	Country Assistance Strategy
CGAP	Code of Good Agricultural Practices
DMSS	Directorate of Marketing and Structural Support (MAFWM)
CWA	Croatian Waters Authority
DPEUIC	Department for Policy, European Union and International Cooperation (MAFWM)
DRPC	Danube River Protection Convention
DWM	Directorate for Water Management
DSDRA	Department of Sustainable Development of Rural Areas (MAFWM)
EC	European Commission
EMP	Environmental Management Plan
EPDRB	Environmental Program for the Danube River Basin
EU	European Union
GEF	Global Environment Facility
GoC	Government of Croatia
IFR	Interim Financial Report
IPARD	Instrument for Pre-Accession Assistance for Rural Development
IT	Information Technology
MAC	Maximum Allowable Content
MAFWM	Ministry of Agriculture, Forestry and Water Management
MEPPPC	Ministry of Environmental Protection, Physical Planning and Construction
M&E	Monitoring and Evaluation
MoF	Ministry of Finance
MTR	Mid-Term Review
PA	Payment Agency
PIU	Project Implementation Unit
SAPARD	Special Accession Program for Agriculture & Rural Development
SBD	Standard Bidding Document

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CROATIA

AGRICULTURAL POLLUTION CONTROL PROJECT

PROJECT DOCUMENT

EUROPE AND CENTRAL ASIA

ECSSD

Date: November 12, 2007 Country Director: Anand K. Seth Sector Manager/Director: Juergen Voegele Project ID: P100639 Focal Area: International waters Lending Instrument: Specific Investment Grant	Team Leader: Aleksandar Nacev Sectors: General agriculture, fishing and forestry sector (100%) Themes: Pollution management and environmental health (P);Environmental policies and institutions (P) Environmental screening category: B (Partial Assessment)

Project Financing Data

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

For Loans/Credits/Others:
Total Bank financing (US$m.): 0.00
Proposed terms:

Financing Plan (US$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	0.00	0.00	0.00
Global Environment Facility (GEF)	3.72	1.28	5.00
Local Communities	0.86	0.24	1.10
GLOBAL ENVIRONMENT - Associated IBRD Fund	7.15	6.75	13.90
Total:	11.73	8.27	20.00

Borrower:
Republic of Croatia
Croatia

Responsible Agency:
Ministry of Agriculture, Forestry and Water Management
Av. Vukovar 78
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Estimated disbursements (Bank FY/US$m)									
FY	8	9	10	11	12	0	0	0	0
Annual	0.40	1.37	1.29	1.29	0.65	0.00	0.00	0.00	0.00
Cumulative	0.40	1.77	3.06	4.35	5.00	5.00	5.00	5.00	5.00

Project implementation period: Start January 10, 2008 End: January 31, 2012
Expected effectiveness date: January 10, 2008
Expected closing date: July 31, 2012

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***	[X]Yes [ ] 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 development objective of the project is to significantly increase the use of environmentally friendly agricultural practices by farmers in Croatia's Danube River basin in order to reduce nutrient discharge from agricultural sources to surface and ground water bodies.

Global Environment objective ***Ref. PAD B.2, Technical Annex 3***
The global environmental objective of the project is to reduce the discharge of nutrients into waters draining into the Danube River and Black Sea.

Project description *[one-sentence summary of each component]* ***Ref. PAD B.3.a, Technical Annex 4***
Component 1: Mitigating Nutrient Loads to Water Bodies from Point-Source Pollution (Manure Management). (Total cost US$14.69 million, of which GEF US$3.36 million, Associated IBRD financing US$10.40 million and Beneficiaries US$0.93 million) - this component will assist the Government of Croatia to promote sustainable manure management practices with the objective of reducing nutrient loads to the surface and ground water bodies of Croatia. The component will establish a Nitrates Mitigation Investment Fund, and provide support for water and soil monitoring and impact analysis.

Component 2: Development and Promotion Agri-Environment Measures (Total cost US$3.96 million, of which GEF US$1.30 million, Associated IBRD financing US$2.50 million and Grant Beneficiaries US$0.16 million) - this component will assist with the implementation of the Code of Good Agricultural Practices (CGAP). The Code is expected to be passed as a Governmental Ordinance by the end of 2007. The project will support dissemination of the CGAP, as well as fund CGAP training and demonstration program.

Component 3: Public Awareness and Replication Strategy (Total cost US$0.74 million, of which GEF US$0.24 million and Associated IBRD financing US$0.50 million) - the Croatian

Agricultural Extension Institute will implement a project county and nationwide public information campaign to disseminate the benefits of proposed project activities with a view to their replication with IPARD support.

Component 4: Project Management (Total cost US$0.60 million, of which GEF US$0.10 million and Associated IBRD financing US$0.50 million)- the APCP will be managed by the Project Implementation Unit (PIU) of the ongoing Agricultural Acquis Cohesion Project (AACP) that has been established within the MAFWM Department for Policy, EU and International Relations. The current staff of the PIU will implement the GEF-supported activities. In addition, a livestock/nitrates management technical specialist will be recruited and paid through GEF grant funds to strengthen capacity of the PIU to implement the GEF-supported activities.

Which safeguard policies are triggered, if any? ***Ref. PAD D.6, Technical Annex 10***
The only safeguard triggered by the project relates to OP 4.01: Environmental Assessment. The project has been classified as environmental category B as the anticipated environmental issues are not significant in scope and scale and can be effectively managed through adequate up-front planning through the Environmental Management Plan.

Significant, non-standard conditions, **if any**, for:
Ref. PAD C.7
Board presentation:
(i) Updating of the Operational Manual to include GEF financing.

Loan/credit effectiveness:
(i) Livestock/Nitrates Management technical specialist appointed in the PIU of AACP.

(ii) Completing the preparation of the project accounting software to include GEF funding and to automatically generate IFRs.

Covenants applicable to project implementation:
(i) The Recipient, through the MAFWM, shall maintain, throughout Project implementation, the PIU headed by a Project Manager and with staff, resources and under terms of reference satisfactory to the Bank.

(ii) The Payment Directorate shall be responsible for managing the Nitrates Mitigation Investment Fund, including the disbursement of Sub-Grants pursuant to the provisions of the Beneficiary and Public Procurement Guide. For such purposes, the Recipient shall appoint, not later than ninety (90) days after the Effective Date, two (2) additional technical staff with responsibility for overseeing management of the Fund.

(iii) The Recipient shall maintain a financial management system acceptable to the Bank and provide semiannual un-audited financial reports satisfactory to the Bank. The project's financial statements, withdrawal applications, and designated account will be audited by independent auditors acceptable to the Bank and on terms of reference acceptable to the Bank. The annual audited financial statements and audit reports will be provided to the Bank within six months of the end of each fiscal year.

(iv) The Recipient, through the MAFWM and the CAEI, shall take all action required to follow and apply at all times the provisions of the Environmental Management Plan in a timely manner.

(v) The Recipient, through the MAFWM and the CAEI, shall take all action required to carry out the Project in accordance with the requirements set forth or referred to in the Operational Manual.

(vi) The Recipient and CAEI shall provide a Progress Report covering the period of one calendar semester throughout execution of the project no later than forty-five days after the end of the period covered by the Report.

(vii) A Mid-Term Review of the Project will be carried out by December 31, 2009.

(viii) The Recipient and CAEI shall adopt and sign the final version of the AWPB in the form approved by the Bank not later than December 31 of each fiscal year.

CROATIA
Agricultural Pollution Control Project

CONTENTS

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

1. In its efforts towards EU accession, the government of Croatia is actively working towards meeting EU requirements and obligations as laid down in the *acquis communautaire* (body of the laws of the European Union). With agriculture and environment making up over half of the *acquis communautaire*, one of the major challenges for the Croatian government is to create a competitive and efficient agriculture sector that is in accordance with the environmental cross-compliance requirements. Recognizing the country's limited capacity to address EU accession commitments in the agriculture and agri-environment sectors, Croatia recently borrowed EUR 25 million from the World Bank in support of the EUR 41 million Agricultural Acquis Cohesion Project (AACP), which is designed to provide the technical skills, institutional capacity and financing needed to address constraints in these sectors. In this context, it is important for Croatia to take measures to reduce point and non-point source of nitrate pollution to water bodies from agricultural sources so as to support "comprehensive protection of the environment and nature from adverse agricultural practices on EU agricultural land". Implementation of the EU Nitrates Directive, including the development of the Code of Good Agricultural Practices, to address nutrient management has become one of the major drivers to the country's commitment to policy and institutional reform in the agricultural/rural sector and towards this, the government has requested GEF support for improved nitrates management as part of its programmatic support for rural development currently underway through the IBRD-supported AACP.

2. *The Black Sea*. The Black Sea has suffered severe environmental damage over the past decades mainly due to coastal erosion, eutrophication, conversion of wetlands, increased nutrient run-off from agriculture, invasion of exotic species, and inadequate resource management, all of which have led to a decline of its biological diversity, loss of habitat and long-term ecological changes. Black Sea Environmental Program (BSEP) studies reveal that 58 percent of the total dissolved nitrogen and 66 percent of the total dissolved phosphorous flowing into the Black Sea come from the Danube river basin. More than half of all nutrient loads into the Danube River originate from agriculture, about one-fourth from private households and about 10-13 percent from industry. In Croatia, the Danube River, as well as its tributaries, the Sava and Drava, drain sixty percent of Croatia's territory (approximately 33,940 sq km out of a total of 56,538 sq km). The three rivers flow southeastward, through the Pannonian plain, which comprises nearly half of Croatia's agricultural land, an area often described as the bread basket of the country. The fact that the entire Pannonian region drains into the Danube River and its tributaries underscores the significant direct impact of the ongoing agricultural practices in the region on the waters of the Danube River and the Black Sea.

3. The ecosystems along the Drava and Sava rivers are of high ecological value and the rivers play a critical role in preserving the natural ecological conditions of the region, including the maintenance of its rich array of flora and fauna. Croatia is among the most biologically rich countries in Europe, ranking second in the number of fish species, third in the estimated number of invertebrates, fifth in the number of reptiles and seventh in the number of vascular plants and mammals. This diversity is a key to the promotion of inland tourism. Croatia's agricultural potential and rich biodiversity make agriculture and tourism the two strategic sectors critical for

the country's future rural development, a fact that has significant implications for the quality of Croatia's water bodies.

4. *Agriculture and environment in Croatia*. Agriculture is an important component of the Croatian economy. In 2005, it accounted for 5.8 percent of GDP, 10 percent of total exports and employment for 8.3 percent of the labor force, which is above the Central and Eastern Europe Countries average. With approximately 170,000 registered farmers and 42 percent of the country's total population of 4.5 million living in rural areas, the sector is, directly or indirectly, an important source of livelihood for a significant section of the society. In 2003[1], however, agriculture accounted for only 0.7 percent of Croatian investments in environmental protection and 2.5 percent of the total operational budget for the environment.

5. Croatia is divided into three regions: the Pannonian plain, the mountainous region and the Mediterranean region along the Adriatic Sea. Of the total agricultural area in Croatia, the largest portion lies in the Pannonian plain (46.3 percent), a smaller section in the Mediterranean region (34.1 percent), and the balance in the mountainous regions of the Dinaric Alps (19.6 percent). The Pannonian region is also the most inhabited region of Croatia (67 percent of total population) and has the most favorable conditions for intensive agriculture production, with the majority of livestock production and food processing industry concentrated in the region. Nationally, livestock density, expressed as livestock units (LU) per hectare of utilized agricultural area (UAA) is about 0.82, which close to the EU-27 average. It is estimated that Croatian livestock produces approximately 65,000 tons of nitrogen and 33,000 tons of phosphorous annually, most of which flow unchecked into local water bodies. The majority of the medium- and small-scale farms do not have manure storage facilities and those facilities that do exist on larger farms are often inadequate in terms of size or imperviousness. This, coupled with uncontrolled application of manure and slurry, is compounding the problem of rising levels of nitrate pollution in soil and water bodies in the Pannonian plain. This problem is not specific to Croatia alone. The agricultural sector of most of the EU candidate countries (pre-accession) were characterized by rudimentary or absent manure management systems; accession to the EU mandated implementation of the Nitrates Directive whereby this issue was addressed through a nitrates management program in accordance with the requirements of the Nitrate Directive.

6. Intensive fertilizer application is also a significant source of nutrient pollution in Croatian soil and waters. Although existing Croatian regulations limit the application of agricultural inputs, notably fertilizers, their imprecise nature leads to their liberal interpretation. Moreover, monitoring and implementation of the regulations is limited. Farmers are generally unaware of the damage that can be caused by inappropriate nutrient management practices. Such pollution, both point-source from manure and non-point from unsustainable agricultural practices, are of particular concern, especially in light of the high groundwater table that characterizes the Pannonian plain, so that during winter and early spring, groundwater often merges with surface waters and contaminates the country's drinking water supplies.

7. In the Danube basin area of Croatia, a study conducted in 2005, indicated that 51 percent of the total nitrogen load to the surface waters in the basin is from agriculture. Another study from 2003 indicated that 90 percent nitrogen load linked to anthropogenic factors comes from

[1] Latest available data on government investment in environment protection.

agriculture and the remaining part from municipal and industrial sources. The nitrogen content of both the Sava and Drava rivers, flowing through Croatia's most intensive agricultural area, is considerably above the maximum allowed content (MAC). During the period 2000-2003, more than 64 percent of the locations monitored by Croatian Waters (CW) exceeded the prescribed nutrient content for the first water category, which includes all groundwater, as well as spring and surface water that should be drinkable in its natural state or after disinfection. For the period 2000-2003, 82-95 percent of locations containing such water exceeded the MAC for nutrients. These figures clearly represent potential pollution of groundwater in the future for which the data on exceeding the MAC of nitrates exists only for the County of Varaždin.

8. Twenty-five percent of the Croatian population is supplied by drinking water from private wells and other non-public water supply sources, and this percentage is even higher (32 percent) in the Danube basin. The majority of these non-public water supply systems face severe problems with nitrates and concentrations often exceed the Croatian MAC. An analysis of Croatian Public Health Institute data revealed that, between 2000-2006, one out of every three samples analyzed from private wells exceeded the MAC for nitrates. The situation with the large scale public water supply was better with only 2.2 percent of water samples exceeding the MAC for nitrates (on average during this period). The situation with local public water supply sources (usually small village or communal springs or wells), however, was less satisfactory, as about 10 percent of these exceeded the MAC for nitrates, and in some counties N content was 30-40 percent above the MAC. Public health repercussions of nutrient, agrochemical and bacterial groundwater pollution in an environment where access to piped household water supply is inadequate, is widely recognized by the rural population of the Pannonian plain to be the major threat to the wellbeing of the affected communities.

9. *Lack of knowledge of environmental impact*: Operators of small commercial farms typically do not take into account impacts to the environment, and awareness of nitrates management in crop and livestock production is still low. Private farmers require a broader knowledge of the economic benefits to adopt technology for improved manure and land management to reduce nutrient loads. The Croatian government is shifting its agriculture subsidy program toward investments in structural reform[2], including grants to help private farmers to make necessary on-farm capital investments. Hence, best practice demonstration and increased farmer training and awareness of options for compliance must be up-scaled and spread geographically in parallel to promote demand for these desired changes to occur.

10. *Water Management and Quality Monitoring*. The MAFWM is the main government body responsible for the protection of agricultural land from pollution and policies for integrated water management and for the development of relevant legal regulations at the national level. These tasks are carried out at the level of MAFWM by the Department of Water Policy and International Projects and the Department of Water Management. The main Acts that regulate water management are the Water Act and the Act on Financing Water Management. Pursuant to the Water Act, the legal entity for water management was established. The tasks of Croatia Waters (Hrvatske vode) include (i) the preparation of a draft Water Management Strategy: (ii) draft River Basin District Management Plans (iii) a water management plan (annual investment plan); (iv) implementation of the said plan: (v) protection from adverse effects of water, water

[2] Structural measures have risen from 1% of total subsidies in 2000 to 16% in 2007.

use in the sense of determining the water reserves and control over their implementation, protection of water in the sense of monitoring and determining the quality of water; and (vi) application of measures for the prevention and reduction of water pollution, issuing of the water rights acts and keeping water books and management of the Water Information System, income planning and financing water management, and calculation and collection of water charges.

11. The Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC) and the Croatian Environmental Agency (CEA) are responsible for overall policy and information in the field of environmental protection in providing conditions for sustainable development; protection of air, soil, water, sea, plant and animal life in the totality of their interactions. The Environmental Protection and Energy Efficiency Fund (EPEFF) has been established as an independent legal entity providing financing for environmental projects. The activities of the Fund are mostly directed toward investments related to the construction of new and rehabilitation of existing landfills. The Croatian Soils Institute (CSI) monitors the state of agricultural soils and the degree of their pollution Both the Osijek and Zagreb Faculties of Agriculture have departments dealing with soil and water protection and run laboratories capable of performing soil and water tests, as does the CSI.

12. The program of water quality monitoring in the Republic of Croatia encompasses monitoring of water quality on 330 monitoring stations on watercourses, lakes and accumulation lakes, 277 monitoring stations on groundwater, and 82 monitoring stations in the coastal sea impacted by land-based pollution. The Program of Water Quality Monitoring is organized so as to measure the water quality in parts of watercourses with significant inflows into the watercourse and discharges of industrial and municipal wastewater, in more sensitive areas (groundwater and surface waters that are used or are planned to be used for water supply, mountain streams up to the settlements, watercourses in karst areas up to the settlements, waters in national parks and nature parks), and in parts of watercourses where the water resources are used or are planned to be used for specific purposes. The program of water quality monitoring also contains the program on trans-boundary waters that are tested within the bilateral cooperation with the Republic of Slovenia and Republic of Hungary and program of water quality testing on national waters and coastal sea impacted by land-based pollution. The programs of groundwater quality monitoring include 124 monitoring stations in the zones of contribution of wellfields of the City of Zagreb, 84 monitoring stations on wellfields of the river basin district of Sava, Drava and Danube, and 19 monitoring stations on the river basin district of Istrian and Littoral Basin and Dalmatian Basin. The program is developed and supervised by Croatian Waters.

13. *EU Accession Requirements*. Croatian EU membership candidate status was confirmed in April 2004, through European Council Decision COM (2004) 275 on European Partnership with Croatia. The GoC is working to meet the requirements of this Decision and the EU requirements and obligations laid down in the EU *Acquis Communautaire*. The recent reform of the EU's Common Agriculture Policy (CAP) has substantially increased the weight of environmental compliance criteria with the resulting cross-compliance requirement a key pre-condition to qualify for EU pre-accession assistance targeting rural development (SAPARD[3] and

[3] Special Accession Program for Agriculture & Rural Development;

future IPA[4] programs). In this context, an agri-environment (AE) Program is an obligatory measure under the EU Rural Development Regulation (1257/1999) which establishes the framework for the comprehensive protection of the environment and nature from adverse agricultural practices on EU agricultural land. Croatia, therefore, needs to fully develop an appropriate institutional, regulatory and enforcement framework for an EU accredited AE program during the pre-accession period, including implementation of the EU Nitrates Directive and the development of a Code of Good Agriculture Practices (CGAP). Negotiations of the Agriculture and Environment Chapters of the EU Acquis are underway, reinforcing the timeliness of the proposed project since, at present, Croatia's AE regulatory and enforcement framework is rudimentary.

Government Strategy and Ongoing Efforts

14. The reduction of nutrient run-off from agriculture has been accorded priority status and represents a constituent part of the country's environmental policy. The Government of Croatia is a member of the 1991 Environmental Program for the Danube River Basin (EPDRB) and a party to the 1994 Danube River Protection Convention (DRPC). The MAFWM is responsible for the transposition and implementation of the EU Nitrates Directive and putting in place EU-compliant agri-environment policies and has established a comprehensive agricultural support scheme for farmers that proposes (but not yet implemented) provisions for promotion of environmentally friendly agriculture practices. Recent policy initiatives include the introduction of new economic instruments (e.g. organic farming), and the strengthening of extension services. Recently passed legislation include the: (i) Ordinance on the Protection of Agricultural Land from Contamination by Harmful Substances; (ii) Ordinance on Environmental Impact Assessment; (iii) Law on Plant Protection; (iv) Law on Agricultural Land that prescribes measures protecting land against adverse agricultural practices and regulates application of harmful substances to the soil; and (v) Law on Organic Agriculture. The Government is also taking steps to institute various forms of fines, penalties and charges to deter unsustainable agricultural practices. The enforcement of these penalties, however, is inadequate and largely ignores the private farming sector. The process of harmonization of the national legislation with EU *acquis* includes the preparation of legislation aimed at protecting water from nutrients derived from agricultural sources.

15. The government has also sought international support to promote environmentally friendly agricultural practices and improve the overall performance of the agricultural sector. The World Bank financed Agricultural Acquis Cohesion Project aims to develop sustainable systems and capacities within the Government to enable Croatia to capture benefits in the agricultural sector accruing from accession to the EU and to meet EU *acquis* requirements. EU CARDS, PHARE and SAPARD projects are focusing on, inter alia, approximation of Croatian

[4] As of January 2007 the EU's current development and pre-accession instruments, including SAPARD, ISPA, Phare and CARDS, will be united under one instrument, the Instrument for Pre-Accession Assistance (IPA). IPA will provide assistance in institution-building and regional development, human resources development, and rural development. This development assistance is intended to help prepare candidate countries for implementation and management of the EC's cohesion policy, particularly the European Regional Development, Cohesion, and Social Funds, for implementation of the Common Agricultural Policy, and for implementation of the *acquis communautaire* concerning the CAP. It will also provide financing for activities related to these actions. For more details see *Communication from the Commission to the Council and the European Parliament On the Instruments for External Assistance under the Future Financial Perspective 2007-2013*, Brussels, 29.9.2004.

water management legislation with the EU Water Acquis; capacity building and development of guidelines for the implementation of the Water Framework Directive; and a Croatian soil monitoring program.

2. Rationale for Bank and GEF involvement

16. Croatia is committed to improving water quality and reducing nutrient pollution over its entire territory and especially in the Danube River Basin, as agreed under the Danube River Convention. The process of harmonization of national legislation with the EU Directives is currently underway. Although a substantial endeavor is underway in policy, institutional and environmental reform in the agriculture sector, as outlined above, it is necessary to intensify these activities and ensure significant funds for the implementation of the AE Program. The positive evolution in attitude regarding agriculture and the environment is encouraging and creates a favorable momentum for the introduction of the proposed GEF measures that would reduce nutrient discharge to surface and groundwater in the Pannonian plain.

17. The Bank has a comparative advantage in helping Croatia institute such measures. It is the main implementing agency for the Investment Fund for Nutrient Reduction in the Danube and Black Sea Basin and currently has a portfolio of over a dozen projects in the basin at various stages of preparation and implementation, each of which aims at reduction of nutrient pollution. The Bank has gained considerable experience with cost-effective methods for the reduction and management of nutrient pollution from agriculture, water quality monitoring, capacity building and the implementation and enforcement of appropriate legislation to promote environmentally friendly agricultural practices, all in the context of EU agriculture and environment *acquis*. It is supporting several such ongoing projects in Romania, Turkey, Bulgaria, Moldova, Georgia and Serbia. Croatia's committed efforts towards EU accession, the favorable political climate, the recognition of the links between sustainable agriculture and the environment and government's commitment to large scale investments in structural reform provide a window of opportunity for the Bank and the GEF to assist the country in piloting a nutrient reduction program that will kick-start a much larger and longer term investment in agricultural competitiveness and agri-environment management, including nitrate reduction.

18. *GEF Eligibility.* The Project's objective of reducing non-point source nutrient pollution from agriculture to the Black Sea and Danube River is consistent with GEF Operational Program Number 8, *Waterbody Based Operational Program*, which focuses "mainly on seriously threatened water-bodies and the most important trans-boundary threats to their ecosystems." The project targets Strategic Priority IW-3 to "Undertake Innovative Demonstration for Reducing Contaminants (in this case Nitrates) and Addressing Water Scarcity", and contributes to SPIW-1 *Catalyzing Financial Resources for Implementation of Agreed Actions* as the proposed intervention will help stimulate follow-on investments at the farm level and support institutions in strengthening nitrates management policy, promoting mitigating action and monitoring outcomes. Activities under the project have been designed to implement priority actions identified in the Black Sea/Danube Strategic Partnership - Nutrient Reduction Investment Fund, Black Sea Strategic Action Plan, Danube River Strategic Action Plan and Danube River Basin Pollution Reduction Program supported by the GEF.

3. Higher level objectives to which the project contributes

19. The GEF project is part of an overall program to assist the country develop sustainable systems and capacities within MAFWM to ensure timely compliance with EU acquis conditions in the rural sector. Towards this, the government is currently implementing the *Agricultural Acquis Cohesion Project* at a total cost of US$48.5 million, including a substantial government contribution of US$13.6 million. The project has been designed to address the country's strategy on sustainable agricultural development, whose fundamental goal is: encouraging more efficient production and marketing of agricultural products in a way that enhances the welfare of farmers and consumers, contributing to the development of Croatia's national economy, protecting the natural resources of the Republic of Croatia and ensuring competitiveness of Croatian agriculture on the world market.

20. Activities under the proposed GEF project will, in part, provide incremental support to activities under the AACP to strengthen Croatia's capacity and readiness to absorb EU pre- and post-accession funds. The project will also build on selected investments under the AACP that would help strengthen Croatia's SAPARD/IPARD Payment Agency, which is already administering EU-funded investments for rural development. GEF grants for nutrient management would be awarded through the Payment Directorate; such GEF support would bridge critical policy and technical gaps and jump-start a much larger program of investment in nitrates management that will be financed primarily through planned Croatian investment in structural reform in the agriculture sector managed through institutions and processes established under the AACP.

21. Also, the proposed project addresses two important objectives outlined in the Country Assistance Strategy (CAS) for Croatia (November 24, 2004) as well as the Progress Report of May 2007, viz. sustainable natural resource management, including protection of the environment and assisting the country with successful EU accession, integration and convergence. The CAS specifically points to the urgent need for rehabilitation of the environment, prevention of pollution of rivers and drinking water sources, restoring marginal agricultural lands and improving water management. Project interventions, including applied research into economic fertilizer use, large-scale demonstration of manure management systems, the introduction of software based models for crop fertility management and the strengthening of Croatia's groundwater monitoring system, are designed to address these environmental issues, which will have the added benefit of raising agricultural competitiveness and improving the livelihoods of populations in the affected areas. By assisting with implementation of the EU Nitrates Directive, the project will assist the government to comply with one of the EU's mandatory directives for accession.

B. PROJECT DESCRIPTION

1. Lending instrument

22. The project will be financed by a GEF grant of US$ 5.0 million.

2. Project development objective and key indicators

23. The proposed GEF project objective reinforces the development objective of the IBRD financed Agriculture Acquis Cohesion Project (AACP) that aims at "developing sustainable systems and capacities within the MAFWM to ensure timely compliance with EU *acquis* conditions in the rural sector". Towards this, AACP aims at, *inter alia,* (i) building capacity for MAFWM support for sustainable, competitive agriculture in Croatia compliant with EU *acquis* requirements: (ii) establishing a transparent and efficient payment system for the disbursement of GEF-financed and subsequent government grants for structural reform in the agri-environment sector; (iii) reorganizing and reinforcing government environmental inspection services supporting environment regulations and (iv) providing project management. GEF funds will provide incremental support for activities of nitrate use in the agricultural sector to assist the country to comply with the requirements of the EU Nitrates Directive and thereby assist the government in not only establishing a competitive agricultural sector but also assist it with honoring its international commitments to reduce pollution of the Danube River and Black Sea.

24. The development objective of the project is to significantly increase the use of environmentally friendly agricultural practices by farmers in Croatia's Danube River Basin in order to reduce nutrient discharge from agricultural sources to surface and ground water bodies. In support of this, the project will assist the Government of Croatia to: (i) promote mitigating measures for nutrient reduction from agricultural sources to surface and ground water bodies (manure management); (ii) implement a national agri-environment policy (Code of Good Agricultural Practices) and the national water protection policy, particularly concerning nitrates; and (iii) carry out a public awareness campaign that would disseminate the benefits of project activities with the aim towards replication at the national and regional levels.

25. *Project Global Environmental Objectives*: The global environmental objective of the project is to reduce the discharge of nutrients into waters draining into the Danube River and Black Sea. The project will provide an opportunity for the GEF to be a catalyst for actions to bring about the successful introduction and widespread adoption of integrated improved land and water resource management practices. GEF support will help reduce costs and barriers to farmers adopting improved and sustainable agricultural practices. It will also help develop mechanisms to move from demonstration level activities to operational projects that reduce non-point nutrient pollution to the Danube River and Black Sea.

26. Key indicators include:

(iii) At least 40% of the farming population in the project areas adopting preventive and remedial measures to reduce nutrient discharges;
(iv) At least a 10% reduction in discharge of nutrients into surface and groundwater in the three project regions;
(v) Increased national awareness of linkages between local actions and impact on water nutrient load.

27. Outcomes envisaged under the project include, *inter alia*, improvement in soil and water quality, increased awareness of environmental issues in agro-industry and among farmers,

increased number of farmers adopting mitigation measures and an increased area of agricultural land using resource conservation technologies.

3. Project components

28. The proposed GEF investment is a pilot activity to be implemented in three selected counties of Croatia: (i) Osiječko-Baranjska; (ii) Vukovarsko-Srijemska; and (iii) Varaždinska. These counties have been selected because of their relatively high livestock density and their concentration of medium scale livestock farms – the three counties combined include an estimated 2,000 private farms that likely fit project eligibility requirements. War-related damage to manure storage and water monitoring infrastructure in Osiječko-Baranjska and Vukovarsko-Srijemska Counties and the high concentration of medium-scale poultry farms in Varaždinska County contributed to the selection of these counties.

29. The project to be implemented over four years, at an estimated cost of US$20.0 million, including GEF grant of US$5.0 million, associated IBRD financing through AACP (approved by the Board of the Executive Directors of the Bank on February 16, 2006 (Report No.: 34939-HR))_ of US$13.9 million and co-financing from grant beneficiaries of US$1.1 million, will include the following components, which will not only improve the waters of the Danube River and Black Sea but also assist Croatia to implement the EU Nitrates Directive *91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources*.

Component 1: Mitigating Nutrient Loads to Water Bodies from Point-Source Pollution (Manure Management). (Total cost US$14.69 million, of which GEF US$3.36 million, Associated IBRD financing US$10.40 million and Beneficiaries US$0.93 million)

30. This component will assist the Government of Croatia to promote sustainable manure management practices with the objective of reducing nutrient loads to the surface and ground water bodies of Croatia. The following activities are envisaged under this component:

Component 1 (a): Nitrates Mitigation Investment Fund:

31. The project will establish a US$2.66 million Nitrates Mitigation Investment Fund within the MAFWM Payment Directorate to finance grants for 75 percent of the cost of manure storage and management. In the counties of Osiječko-Baranjska and Vukovarsko-Srijemska, medium-scale livestock farmers having 10-100 cows, 15-150 fattening beef cattle, 40-400 sows or 100-1000 grower/fattening pigs will be eligible for grants for establishing on-farm, EU-compliant manure storage facilities, including impervious platforms for solid manure with drainage sumps and slurry pits for liquid manure. Grants will contribute to the construction of the platforms/sumps and associated pumping and agitation equipment. In Varaždinska county, in addition to cattle farms, poultry farms will be targeted, with flocks of 2,500-25,000 layers or 10,000-100,000 broilers per annum eligible for matching grants for manure management systems based on impervious storage platforms and drainage sumps. Grants will also be made for off-farm storage and innovative manure spreading equipment (e.g. soil injection) in some cases. Initial analysis indicates that concrete structures, at an estimated cost of EUR 1350/LU, will be the most cost-effective technology for manure storage; however, the project will support other

innovative EU-compliant technologies that meet Croatian construction and environmental regulations. An IPARD-compliant Beneficiary and Public Procurement Guide, subject to Bank approval and detailing the criteria and processes for awarding grants, together with draft manure storage facility plans and minimum EU/Croatian construction specifications, will be developed by project effectiveness.

Component 1 (b). Support for Water & Soil Monitoring and Impact Analysis:

32. Under this sub-component, the project, in collaboration with the CWA and MAFWM, will install piezometers in select sites to monitor the quality of water flowing out of livestock farms implementing the project financed manure management sub-projects. The CWA will take responsibility for monitoring these piezometers as part of its national groundwater monitoring program. Soil nitrate levels will be monitored through the ongoing local administration (county and municipal)-financed soil testing program. The project will also include systematic sampling and testing of well water in rural areas, both as a goodwill measure for participating farmers as well as to demonstrate the risk to rural communities from inappropriate nitrates management. A Quality Control and Quality Assurance (QC/QA) operational manual will be developed with the aim of ensuring that all procedures, including sampling planning, field work, sample handling, laboratory analysis, record keeping and documentation would be coherent on all measuring stations and monitoring programs.

Component 2: Development and Promotion Agri-Environment Measures (Total cost US$3.96 million, of which GEF US$1.30 million, Associated IBRD financing US$2.50 million and Grant Beneficiaries US$0.16 million)

33. This component will assist with the implementation of the Code of Good Agricultural Practices (CGAP), currently under preparation by the MAFWM. The Code is expected to be passed as a Governmental Ordinance by the end of 2007. The following activities under this component will be implemented by the Croatian Agricultural Extension Institute (CAEI), through the appointment of three nitrates management specialists to be funded by the project and located in the three project county offices of the CAEI. A livestock/nitrates management technical specialist will coordinate the work of the CAEI and support the PIU.

34. *Dissemination of the CGAP*. The CAEI will interpret the Code in a manner that would ensure farmer buy-in, and develop and publish a user-friendly Guideline that would help farmers understand and implement the relevant provisions of the Code. The publication of the Guidelines would be supplemented with brochures, messages through mass media, agricultural fairs, etc. where farmers would be informed by project-trained CAEI staff and private advisors of the most cost-effective on-farm technologies that need to be employed for complying with the Nitrates Directive, with particular emphasis on manure storage and land application of manure as organic fertilizer, based on soil nitrogen balances.

35. *CGAP Training and Demonstration (T&D) Program*: The CAEI will undertake a training and demonstration program to educate and train the livestock community (extension workers, farmers, enterprises) in sustainable, cost-effective manure management practices. The project will build capacity within CAEI for activities under this sub-component by using GEF funds to recruit three technical staff, to be located in the three participating counties and trained to

implement the manure management program and code of good agricultural practices. This will include: (i) technical assistance to farmers receiving nitrate mitigation grants; (ii) nutrient management planning in the project counties to promote optimal use of organic and mineral fertilizers in order to reduce the loss of N and P to the water bodies; and (iii) demonstration of cover crop technology that reduces nutrient loss, protects soil from compaction and erosion, maintains soil organic matter, enhances biodiversity and provides additional fodder and/or green manure, which will also be demonstrated on up to 200 ha per annum in each participating county. The project will provide some equipment for training and demonstration purposes.

Component 3: Public Awareness and Replication Strategy (Total cost US$0.74 million, of which GEF US$0.24 million and Associated IBRD financing US$0.50 million)

36. The CAEI will implement a project county and nationwide public information campaign to disseminate the benefits of proposed project activities with a view to their replication with IPARD support.

37. *Public Awareness:* At the project county level, the main audience will be the direct stakeholders of the project, including local and county officials, farmers, community groups and NGOs. At the national level the project will concentrate on institutions and groups, including government agencies, national environmental or professional associations, academia, NGOs, etc. and the population at large. The aim would be to familiarize the population with the project and its benefits and thereby raise the interest of potential future clients. The project will provide for the organization of national and regional workshops, field days, study visits, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other similar areas of Croatia as well as Black Sea riparian countries.

38. *Website:* The project will assist the CAEI to develop and maintain a website containing detailed information on project activities and programs and on technologies and land management systems appropriate for reducing point and non-point nutrient loads from agriculture to surface and ground water bodies.

39 *Knowledge Sharing:* Provision is made for government and project staff participation in GEF International Waters Learning Exchange and Resource Network (IW-LEARN) conferences and workshops, the Danube and Black Sea Commission meetings and related nitrates management international experiential training seminars and workshops.

Component 4: Project Management (Total cost US$0.60 million, of which GEF US$0.10 million and Associated IBRD financing US$0.50 million)

40. The APCP will be managed by the Project Implementation Unit (PIU) of the AACP that has been established within the MAFWM Department for Policy, EU and International Relations. The PIU is currently staffed with a Project Manager, a Financial Controller, a Procurement Officer and an administration/secretarial support person who will assist with implementation of the GEF-supported activities. The PIU will be supported by a livestock/nitrates management technical specialist (see Component 2). The aim of the PIU would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions.

4. Lessons learned and reflected in the project design

41. Key lessons learned from rural environmental and agricultural operations in the region and reflected in the proposed project include:

- the early involvement of local administrations, communities and key decision makers in project preparation is essential in order to ensure ownership and successful project implementation;
- testing and demonstration activities are crucial in achieving the dissemination of the project results and the ensuring replication of the project interventions;
- adoption of mitigation measures to reduce nutrient load should yield tangible benefits for the expected users, specifically local communities, in order to ensure adoption;
- effective monitoring and evaluation mechanisms need to be developed and applied to measure project impact and feed lessons leant into project design;
- decentralized responsibility for financial and project management builds local ownership and sustainability of project activities; and
- dissemination of information is critical to the widespread adoption of new technologies and practices.

42. The project will incorporate these experiences and build on them through a participatory and transparent approach to project preparation and implementation.

43. The project design particularly draws on the experience of the Poland Rural Environment Protection Project (PREPP) which employed a similar approach to improved on-farm manure storage as proposed under the APCP. The PREPP showed that farmers, given a balanced mix of information, financial incentives and environmental regulation enthusiastically adopted on-farm manure storage technology. While the financial disincentive of non-compliance was an important driver, (as will be the case in Croatia) participating Polish farmers also understood their responsibility for sustainable environmental management, perceived a substantial financial benefit from improved livestock nutrient management and took pride in their well-maintained surroundings. Compliance with on-farm food safety requirements was also an important incentive in Poland as it expanded market and price opportunities, a situation that will soon apply in Croatia under the forthcoming good agricultural practice legislation.

44. The PREPP Implementation Completion Report (ICR) noted that "project design fostered ownership at the community level by involving farmers in the project preparation"; a similar approach has been adopted in Croatia. The ICR also found Polish farmer acceptance of a capital contribution of 30 percent, similar to the level proposed in Croatia. Farmer's capacity to largely meet this cost through in-kind contribution (site preparation, materials and labor) was a seen as significant factor in farmer acceptance of the funding formulae.

45. The PREPP ICR also emphasized that a significant part of the success of the project could be attributed to the strong involvement of the Polish advisory services. Farm advisors succeeded in educating a traditionally conservative Polish farming community to adopt innovative nutrient management technology and accept responsibility for the environment risk their farms posed. The APCP proposes to use the professional services of the CAEI in the development of the pilot programs and to incorporate the experience gained across the entire

CAEI system, which, ultimately, will be responsible for advising Croatian farmers on all aspects of good agricultural practice, as required by law, including on-farm nutrient management.

5. Alternatives considered and reasons for rejection

46. The project preparation team considered preparing this project as a GEF-financed component of the IBRD-supported Agriculture Acquis Cohesion Project (AACP), given the considerable synergies between the two projects. A PDF-B Grant request was submitted to GEF to start preparation of this project while AACP was being prepared. However, as the GEF pipeline was frozen for a few months, including consideration of all PDF-B requests by GEF management, the preparation of the GEF component was put on hold. It was eventually agreed to move forward with AACP without the GEF component so as not to delay the start of implementation of AACP-financed activities. It was recommended to prepare the GEF component as a self-standing project at a time when funds became available and to ensure, during preparation, that the proposed design and activities of the GEF-financed operation be synergistic with those of the IBRD-financed AACP.

C. IMPLEMENTATION

1. Partnership arrangements (if applicable)

2. Institutional and implementation arrangements

47. The APCP will be implemented through existing institutions. Project management will be undertaken by the PIU of the Agricultural Acquis Cohesion Project on a cost-shared basis. A GEF-funded additional technical specialist, to serve as livestock/nitrates management specialist, will be hired for the life of the project. The PIU is already accredited for World Bank procurement and financial management procedures and has a successful track record in Bank project implementation.

48. The MAFWM Payment Directorate has been established to disburse all government market and structural payments to farmers and includes an EU-accredited SAPARD Payment Agency. Under Component 1, for the provision of grants for sustainable manure management practices through the Payment Directorate's *Nitrates Management Investment Fund*, the Project would support the appointment of two additional technical staff with responsibility for overseeing management of the Fund, including the disbursement of the GEF sub-grants and monitoring of their implementation. The PIU, in collaboration with the Payment Directorate will prepare an IPARD-compliant Beneficiary and Public Procurement Guide describing procedures for the application, selection and issuance of grants under the Fund. The two staff will be integrated into the Payment Directorate over the life of the project to provide long-term capacity for the management of the IPA Measure 3: *Preparation to Implement Actions Designed to Improve the Environment and the Countryside*.

49. Components 2 and 3 will be implemented by the CAEI. It is a publicly funded institute with responsibility for extension management and delivery in Croatia. The CAEI would be strengthened through the appointment of three nitrates management specialists, one in each participating county, to support farmers in planning their nitrate management programs,

including manure storage and the application of the CGAP, including extensive field demonstrations of CGAP technology and crop nutrient monitoring and management. As with the Nitrates Management Fund, it is expected that these three staff will be absorbed into the CAEI over the life of the project, forming the basis for nitrates management advisory capacity within the institute. The project will also provide extensive training for CAEI and private extension advisers in the EU Nitrates Directive and the practical aspects of its implementation.

3. Monitoring and evaluation of outcomes/results

50. Project performance indicators as well as the arrangements for results monitoring are provided in Annex 3. Project monitoring and evaluation would be the responsibility of both the PIU and the CAEI. The PIU would annually monitor and evaluate project performance through conducting beneficiary surveys. Project interventions will be monitored against both process as well as environmental stress reduction indicators developed at the start of project. The results of M&E activities will be fed back into the implementation process as improved practices. The Payment Agency will conduct ex-post evaluation of manure storage investments and all investments will be subject to on-the-spot control by Agriculture Inspectors, consistent with IPARD control procedures.

51. In order to evaluate the impact of project interventions on nutrient discharges and run off into the Danube River and its tributaries, the project will install piezometers and lysimeters in collaboration with CWA, which will provide funds to monitor water quality for nutrients in each of the selected pilot areas as part of its national groundwater monitoring program. The County and Municipal governments and farmers in the project counties will share the cost of soil testing on beneficiary and non-beneficiary farms. The design of the monitoring plan emphasizes cost-effectiveness and replicability in other parts of the country.

52. A mid-term review will be carried out to assess overall progress. Lessons learned, with recommendations for any improvements, would be used in restructuring the project, if necessary.

4. Sustainability and Replicability

53. *Sustainability:* The project is being prepared at the request of the Government of Croatia in recognition of the need to address the growing environmental threat to the waters of the Black Sea and the global implications of this process. The Ministries of Environment and Agriculture at the national level, as well as local government, agencies and farming communities will be actively engaged in project implementation. The project will provide assistance for capacity building in policy and regulatory matters, which will enable the MAFWM and Ministry of Environment Protection, Physical Planning and Construction (MEPPPC) to establish a sound basis for overall management of the project and continue with implementation of integrated action plans for nutrient reduction after the completion of the project. To ensure social sustainability, the project will emphasize the early involvement of key stakeholders in project preparation and implementation, including policy makers, local public officials and community leaders, farmers, their associations and civil society. Such involvement will create a sense of ownership and contribute to social sustainability. It will also ensure continued buy-in for project activities after the life of the project. As regards financial sustainability, the project will benefit the farmers by promoting yield-enhancing agricultural practices that will improve agricultural

productivity and efficiency. Such project interventions will assist in raising farm and household incomes and improving the standard of living in the project area. Sustainability of funding for watershed management operations after the life of the project will be enhanced once the long-term economic benefits of project interventions, such as nutrient management, manure management, etc. become evident to the local and national populations and government as well as with the incorporation of agri-environment measures in the annual budgets of the MAFWM and by leveraging IPARD funding.

54. *Replication*: The Project's activities will be developed to maximize the potential for replication. A specific component on replication strategy has been developed under the project whereby a public awareness and communication campaign on project activities and benefits will be undertaken to generate interest for replication of project interventions both within and outside Croatia and in other riparian countries. This will be achieved through national and regional workshops, field trips, training, publication in international agriculture and environmental journals, participation in Global Distance Learning programs and other similar activities. A Nitrates Initiative website will be developed and maintained in accordance with IW-LEARN guidelines. The project will also earmark funds to finance country official(s) participation in at least two GEF International Waters conferences, travel to brief the Danube & Black Sea Commissions, as well as for an exhibit that can be taken to different meetings to describe the project. The project will also interact closely with the regional projects supported by UNDP and UNEP under the Strategic Partnership Programs to allow dissemination of project results to a larger audience, which would enhance the scope of project replicability. During implementation, the project will also seek to benefit from the ongoing activities and lessons learned under the regional projects so as to improve project performance.

5. Critical risks and possible controversial aspects

Risk	Risk Rating	Mitigation Measures
Delays with the accreditation of AE measures.	S	Project will support the MAFWM with the development of policies and procedures as required by EU and will provide funding for the timely testing of implementation of those measures.
Delays in aligning national non-point source discharge standards with EU standards and associated compliance requirements.	S	Project will help government to adjust and adapt polices and enforcement mechanisms to rapidly align national standards to those of the EU.
Farmers demonstrate limited willingness to adopt improved, environmentally-friendly agricultural practices.	S	Benefits of compliance with good agricultural practices will be widely disseminated through Training and Demonstration Sites. Regular social assessment; participatory approach to project implementation; on-location advice; advocacy of immediate and long-term benefits of project activities; and farmer training.

Risk	Risk Rating	Mitigation Measures
Agro-processors and farmers do not have access to credit, machinery and inputs that would enable them to practice mitigation measures.	M	Banks are already pre-financing SAPARD investments and contractor credit is available. Cost-sharing in kind by farmers will be encouraged thus reducing cash contributions.
Overall Risk Rating	S	
Risk Rating: H=High; S=Substantial; M=Modest; N=Negligible		

55. ***Possible Controversial Aspects*:** None.

6. Loan/credit conditions and covenants

56. ***Conditions for Grant Effectiveness:***

(i) A Livestock/Nitrates Management technical specialist shall have been appointed to the PIU under terms of reference and with qualifications satisfactory to the Bank.

(ii) Completion of the preparation of the Project accounting software to include GEF funding and to automatically generate IFRs.

Legal Covenants

57. The Recipient, through the MAFWM, shall maintain, throughout Project implementation, the PIU headed by a Project Manager and with staff, resources and under terms of reference satisfactory to the Bank.

58. The Payment Directorate shall be responsible for managing the Nitrates Mitigation Investment Fund, including the disbursement of Sub-Grants pursuant to the provisions of the Beneficiary and Public Procurement Guide. For such purposes, the Recipient shall appoint, not later than ninety (90) days after the Effective Date, two (2) additional technical staff with responsibility for overseeing management of the Fund.

59. The Recipient shall maintain a financial management system acceptable to the Bank and provide semiannual un-audited financial reports satisfactory to the Bank. The project's financial statements, withdrawal applications, and designated accounts will be audited by independent auditors acceptable to the Bank and on terms of reference acceptable to the Bank. The annual audited financial statements and audit reports will be provided to the Bank within six months of the end of each fiscal year.

60. The Recipient, through the MAFWM and the CAEI, shall take all action required to follow and apply at all times the provisions of the Environmental Management Plan in a timely manner.

61. The Recipient, through the MAFWM and the CAEI, shall take all action required to carry out the Project in accordance with the requirements set forth or referred to in the Operational Manual.

62. The Recipient and CAEI shall provide a Progress Report covering the period of one calendar semester throughout execution of the project no later than forty-five days after the end of the period covered by the Report.

63. A Mid-Term Review of the Project will be carried out by December 31, 2009.

64. The Recipient and CAEI shall adopt and sign the final version of the AWPB in the form approved by the Bank not later than December 31 of each fiscal year.

D. APPRAISAL SUMMARY

1. Economic and financial analyses

65. The project will have clear benefits in addressing key elements in nutrient pollution of the Black Sea from poor agricultural practices in the Croatian counties piloted under the project. Besides improvements in the quality of ground and surface waters, project benefits also include:

a) progress towards compliance with the EU Nitrates Directive and increased absorption capacity of future EU funds for water and sanitation;
b) sequestering carbon in the grasslands, croplands and forests;
c) improvements in health as there will be an improvement in the drinking water, sanitation and general hygiene of the population;
d) additional farm income from effective use of organic waste, crop rotations, organic products and improved livestock grazing practices and improved agricultural productivity through better agricultural practices, low input use and better farm management;
e) increased capacity building of local institutions.

66. Through improved farming practices, annual reduction of dissolved nutrients flowing into the Black Sea is estimated at 20 kg/ha N and 2.5 kg/ha P. It is assumed that through improved handling, half of the manure is prevented from being flushed into the river systems and hence into the Black Sea. If after 10 years, 60 percent of the farmers in the project area adopted similar practices, then the estimated annual reduction of pollutants flowing into the Black Sea will be significant. Also it is reasonable to assume that through the project's public awareness campaign, field visits and workshops, even farmers from adjoining areas may adopt the environmentally friendly agricultural practices, thus resulting in a larger impact under the project. More detailed assessment will be undertaken in quantifying accrued benefits during project implementation through the monitoring and evaluation (M&E) program linked to the project's result framework.

2. Technical

67. The following key technical issues have been addressed in the project design:

- Appropriate co-financing requirement for farm based investments: A minimum co-financing percentage of 25 percent has been proposed after taking into account feedback from consultations with the MAFWM, county representatives, and farmers.

- Promotion of on-farm investments: The project will help promote demand for use of EU IPARD funds through the promotion of improved on-farm manure storage systems, CGAP testing and demonstration activities and public awareness and training.

- National Water Quality Monitoring: The project will expand the national network of ground and surface water testing points and support CWA with the establishment of a national water quality monitoring and database system.

3. Fiduciary

68. Procurement. An assessment of the capacity of the AACP implementation team within MAFWM to implement procurement actions for the project was carried out in July 2005. The assessment reviewed the organizational structure for implementing the project and the interaction between the implementing team staff responsible for the procurement and the MAFWM as a whole. The team's procurement officer is overseen by an experienced procurement manager who has participated in several procurement training courses and has extensive experience in different Procurement and Selection procedures. The training of the implementing team's procurement officer is in progress.

69. Financial Management. The financial management arrangements of the project are acceptable to the World Bank's financial management requirements. It was agreed at the negotiation that, to strengthen capacity of the project financial management, the implementing agency would complete before project effectiveness the preparation of the project accounting software to include GEF funding and automatically generate IFRs.

70. Audit. In 2006 MAFWM started implementation of Agricultural Acquis Cohesion Project and the first audit report thereof has been received with some delay, however auditors provided unqualified opinion and the report was acceptable to the Bank.

71. Financial Management Risk Assessment**.** The overall financial management risk for the project is substantial before mitigation measures; with agreed adequate mitigation measures, the financial management residual risk is rated moderate. Details of FM are provided in Annex 7.

72. Implementation of FM. MAFWM through PIU will maintain a financial management both for itself and the project system acceptable to the Bank. Additionally MAFWM through PIU will be responsible to maintain the sound accounting and financial management system for project transactions. The project financial statements will be audited annually by auditor acceptable to the Bank, which will prepare its report from audit. The annual audited project financial statements and audit reports together with auditors recommendations will be provided to the Bank within six months of the end of each fiscal year. The annual report for the project can be combined with the ongoing AACP.

4. Social

73. A rapid social assessment was undertaken during project preparation to gather information on problems faced by farmers with nutrient pollution in the project area, their level of knowledge and access to technologies for implementing mitigating measures as well as to inform the farming community of the proposed project activities and gauge the level of relevance and acceptance of these activities. A questionnaire was developed and distributed to farmers in all three project counties. Consultative meetings were held with a broad spectrum of stakeholders, including individual farmers; rural household members; agro-enterprisers, as well as the enterprise for public water supply; county administration staff, including members from the Croatian Agricultural Extension Services and Department for Agriculture and Forestry. Care was taken to include women in the discussions. Project interventions have been designed taking into account farmer concerns and priorities. The main findings of the social survey are summarized below.

74. Most farmers in the project area are owners of medium-scale farms (10-50 LU). Poultry farmers usually have larger-scale farms (80-400 LU). In the majority of cases, owners' immediate family members, usually three to four, work on the farms. The project area is characterized by intensive agriculture. Corn, wheat, sunflower and soyabeans are the common crops on arable farms while on dairy farms forage crops and clover are predominant.

75. During consultative meetings it became clear that farmers have poor ecological awareness of problems caused inappropriate manure storage and application. They dump manure on bare soil and a very small percentage has concrete platforms for manure storage. A small number of farmers have platforms but they tend to be of insufficient capacity.

76. So far farmers have exhibited a lack of interest in implementing agricultural friendly agricultural practices as they find application of these techniques expensive. Often they are also unaware of the costs of implementing improved agro-technologies. However, they did express willingness to adopt improved technologies if financial incentives were provided. They are often hampered by a lack funds to undertake appropriate mitigating measures. Access to bank loans/credits is a constraint. They, therefore, welcomed the provision of grants to be provided under the proposed project.

77. Most farmers are not familiar with EU standards regarding proper livestock manure management as well as to "keep their lands in good agricultural condition" as mandated by EU. They are unaware of the benefits that would accrue when compliance with EU measures is achieved The younger generation of farmers was, however, more aware of EU norms and familiar with the changes they need to make in animal husbandry to comply with EU legislation. The media (T.V., newspapers, etc.) were identified as a significant means, through which farmers received information on EU requirements in agriculture. The Croatian Agricultural Extension Institute (CAEI) was also identified as an important source of assistance by farmers in the project area. In all three pilot counties, farmers were in regular contact with CAEI and often turned to them for advice.

78. Generally, to most farmers, the adverse influence of unsustainable agricultural practices on water quality was not clear. A considerable number of farmers have private wells, but few have carried out water analyses. However, all survey respondents expressed interest in participating in a water quality monitoring program for farmers' wells. Overall, farmers interviewed were interested in receiving expert advice on nitrate management from experts. This was more so among farmers that have larger holdings: 60-100 ha and are better educated. These farmers are proactive, aware of the nexus between nutrient pollution and water quality and the need to comply with EU agricultural norms.

79. To ensure that the project achieves its social development outcomes as indicated in Annex 3, the PIU will ensure full participation of beneficiaries in the implementation of the project. The PIU will annually monitor and evaluate project progress and measure the impact of project activities against the socio-economic baseline survey undertaken during project preparation; results of the M&E activities will be fed back into the implementation process as improved practices.

5. Environment

80. The project is rated as a category "B" project. The safeguard policy, OP 4.01: Environmental Assessment is triggered by proposed project activities. No major environmental issues are envisaged under the project. In fact improved nutrient management under the project will yield benefits at the local, national and regional levels through sustainable rural growth and development: (i) at the farm level, through improved agricultural productivity and therefore additional incomes as a result of better agricultural practices; (ii) improvements in health and sanitation as there will be an improvement in the drinking water and general hygiene of the villages; and (iii) increased populations of flora and fauna of local economic and social importance through terrestrial and aquatic habitat enhancement.

81. Environmental concerns under this project, more specifically under Component 1, may include typical impacts on the environment related to construction, such as dust and noise due to the construction of manure storage platforms and sumps, as well as improper disposal of construction waste and sediment loads in waterways in case of stream crossings. Risks associated with the operational phase include improper waste handling whereby there may be mixing of other waste with organic waste, leakages from the manure storage facilities (if construction is not made according to specifications), improper cleaning of the individual manure storage tanks and large manure platforms, methane venting and odor related issues. These risks, which are assessed to be relatively minor, will be managed by informed farmers and contractors, MAFWM agricultural inspectors and water inspectors. Overall, the project is expected to contribute significantly to the reduction of livestock and agriculture point and non-point pollution of soil and water in Croatia.

82. An Environment Management Plan (EMP) has been prepared to ensure that activities under these components will be closely monitored. The EMP also defines the responsibilities of the entities charged with implementing the measures detailed in the EMP. The EMP has been discussed within Croatia and made publicly available on July 30, 2007.

6. Safeguard policies

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

83. With the exception of Environmental Assessment, no other safeguard polices are applicable under the project. Regarding Projects on International Waterways (OP/BP 7.50), the safeguard policy does not apply as the project does not involve the use or extraction of international waters or cause pollution to international waters. Proposed project activities do not address or affect water supply nor target waste water treatment. The project is specifically designed to reduce nutrient discharges to Croatia's surface and ground water bodies in the Danube watershed with the ultimate aim of improving the quality of the Danube River and Black Sea through the following activities: (1) improved manure management practices; (2) promotion of environmentally friendly agricultural practices; and (3) a public awareness campaign to disseminate the benefits of project activities. Under component 1, given that the majority of the medium- and small-scale farms do not have manure storage facilities and those facilities that do exist on larger farms are often inadequate in terms of size or imperviousness, the project will provide grants to finance 75 percent of the cost of establishing adequate manure storage structures on farmers' fields. These storage structures will be made of concrete, constructed adjacent to the animal stables, and sized to accommodate the volume of manure generated by the livestock on each farm, including capacity for storage for at least six months. Training will also be provided on manure handling and application: optimum amount of, and appropriate timing for, application of the manure on farmers' fields as organic fertilizer. The overall purpose of the manure storage facilities is to store manure until conditions are right for agricultural lands to fully absorb the manure nutrients in the soil. In the absence of such facilities, manure is often either emptied directly into rivers or spread on agricultural land under inappropriate conditions, leading to run-off or leaching of excess nutrients into surface and ground waters. The provision of manure storage facilities where absent, the improved design of existing structures where inadequate, and the training in manure handling and application will combine to reduce nutrient run off to surface and ground water bodies, thereby improving the quality of water (as well as the quality of soil) in the project area.

84. Activities under component 2 (promotion of environmentally friendly agricultural practices), will assist with the promotion of the Code of Good Agricultural Practices, developed by Croatia in line with EU Nitrates Directive, through information to farmers on the most cost

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

effective on-farm technologies that need to be employed for complying with the Nitrates Directive, with particular emphasis on fertilizer/manure storage and land application based on soil nitrogen balances. In addition, the project will undertake a training and demonstration program to educate and train the farmers, the livestock community, extension workers, etc. in sustainable, cost-effective environmentally friendly agricultural measures, including: (i) nutrient management planning in the project counties to promote optimal use of organic and mineral fertilizers in order to reduce the flow of N and P to the water bodies; and (ii) demonstration of cover crop technology that reduces nutrient loss, protects soil from compaction and erosion, maintains soil organic matter, enhances biodiversity and provides additional fodder and/or green manure. The project will provide some equipment for training and demonstration purposes. Under component 3, the project will undertake a broad local and national public awareness campaign to disseminate the benefits of project activities with the aim of replicating these in similar areas within Croatia and the region. In sum, activities envisaged under the project will focus on sustainable land management with the objective of reducing nutrient discharges to surface and ground water in the project area; thus OP 7.50 on International Waterways in not triggered.

85. The project is being funded under the GEF Strategic Partnership Program for the Danube and Black Sea Basin that aims at reducing the discharge of nutrients to these international water bodies. A Strategic Action Plan (SAP) has been developed by the Danube River and Black Sea Commissions, which has been signed by all riparian countries, including Croatia, to reduce nutrient loads entering these transboundary waters. The riparian countries have agreed to implement projects that specifically seek to reduce the discharge of nutrient loads stemming from agricultural sources into surface and groundwater bodies within their countries. The GEF Strategic Partnership Program has been endorsed by all riparian countries of the Danube and Black Sea, including Croatia. The proposed project has been prepared under this Strategic Partnership Program and is essentially a tool to implement agricultural nutrient pollution control measures outlined in the SAP. All riparian countries are regularly kept informed of ongoing activities/projects on agricultural pollution control through GEF progress reports as well as Commission meetings.

7. Policy Exceptions and Readiness

86. No policy exceptions have been requested under the project. The project is ready for implementation.

Annex 1: Country and Sector or Program Background

CROATIA: Agricultural Pollution Control Project

Introduction

1. The Republic of Croatia has a surface of 87.609 km² consisting of 56.542 km^2 (64.5 percent) of continental land area and 31.067 km^2 (35.5 percent) of territorial sea area. With a total population of 4,437,460 (Census 2001), Croatia has an average population density of 78 inhabitants / km². In 2001 the rural population accounted for 44.4 percent of the total population, while the agricultural population accounted for 5.5 percent of total and 11 percent of the rural population. In Croatia (2004), two third of the land (63 percent) is classified as agricultural land and forests, and 37 percent as settlements, with forests covering almost half (44 percent) of the total land. Out of the total available agricultural land and forests, 81 percent are in use and maintained. Croatia has a diverse agricultural resource base, with the capacity to produce most continental crop and livestock products, plus many Mediterranean crops. Soil fertility and climate are suitable for agriculture, and in areas such as eastern Slavonia the yield potential is equivalent to the major agricultural areas of the EU. With 0.73 ha of agricultural land and 0.34 ha of arable land per capita, Croatia also has proportionately more farmland than the EU (0.36 ha agricultural land per capita) and most of the other countries in eastern and central Europe.

2. Small, private farms dominate production, owning approximately two-thirds of all agricultural land (2.09 million ha), and 85 percent of all livestock (measured as livestock equivalents). Production is very low by western European standards, however, due to small farm size (average 3 ha), a high level of fragmentation and limited use of modern technology. Marketed surplus is also low, with most production consumed on the farm. As a result of these factors, only 15 percent of farm households relied solely on farming for their livelihoods in 2003 (2003 Census).

3. Large, partially privatized owned agro-kombinats (AKs) and agricultural cooperatives own the remaining 1.07 million ha. Although the AKs use more modern, capital-intensive management systems and obtain higher levels of production, their output and productivity are still below production levels in Western Europe. Traditionally, the AKs have also dominated agricultural markets through their vertically and horizontally integrated processing and marketing subsidiaries. They are also a powerful influence on agricultural policy, seeking to preserve the high levels of protection and support they received during the socialist era. Thus, while the AK's account for less than 20 percent of total output, they have historically dominated agricultural sector policy and agricultural markets.

4. The transition to a modern, market-oriented agricultural economy requires reform of both components of this dual structure of agriculture. The competitiveness of small, private farms must be increased through policies and programs to facilitate: farm consolidation and enlargement, the adoption of more modern management systems and an increase in production and marketed surplus. A parallel re-structuring of the AKs is also needed, based on full privatization, disaggregation and more efficient management. Commodity and factor markets also need reform. Competitive commodity markets must replace the regional processing and marketing monopsonies created by the AKs, and the markets for land and capital need to be strengthened.

Agriculture production

5. Agriculture, forestry and fishery sector play an important economic role in Croatia. The total value of agricultural production increased by 17.2 percent between 2000 (HRK 10.95 billion.) and 2005 (HRK 13.18 billion), yet its share of total GDP decreased from 7.4 percent to 5.8 percent. In 2004, the 99,000 people employed in the agriculture formed 7 percent of total employment in Croatia. Table **1** shows the average farm size in Croatia. The family sector occupies approximately 80 percent of agricultural land, holds 82 percent of the livestock and accounts for approximately 95 percent of the total workforce in agriculture. The majority of family farms are fragmentized, with, on average, 4.4 land parcels per household with an average size of 0.45 hectares.

Table 1: Farm size and number by form of ownership (Croatia 2003 Agricultural Census)

Farm size, ha	Farm households		Business entities		Total	
	no.	ha	no.	ha	no.	ha
< 1	227,434	50,759	327	71	227,761	50,830
1 – 2	71,933	67,103	51	77	71,984	67,180
2 – 3	40,129	65,330	45	108	40,174	65,438
> 3	109,036	670,004	941	216,952	109,977	886,965
Total	448,532	853,196	1,364	217,208	449,896	1,070,404

6. In 2004, 1.09 million ha of arable land was used for grain production, about 70 percent of the total arable area. Maize is the dominant crop, covering 58 percent of the area cropped for grain, with wheat at 32 percent, barley at 7 percent, oats at 2.6 percent and rye and the other grains at 0.4 percent. In recent years, wheat production has been in steady decline while the production of maize (220,000 ha) has shown a slight increase, as has barley. Oil seed crops were cultivated on 80,000 ha or approximately 6 percent of the total arable area with soybean representing about 50 percent of oilseed production, which also includes sunflower and rape. Annually, about one quarter of available arable land is uncultivated including about 20,000 ha undergoing demining. Crop yields, which are heavily weather dependent, have been static in recent years and are generally below EU levels. In 2004, the average yield (tons/ha) for the major crops included wheat (4.3), maize (5.7), barley (3.3) and soybean (2.7).

7. About 69,000 ha or 2.2 percent of total agricultural land is used for fruit production, 95 percent of which is owned by family farms, which market only a small percentage of their production. As a result, Croatia imports in excess of 50 percent of its fruit consumption. While most fruit production has been static or in decline in recent years, apple production, which forms 43 percent of total fruit production has risen by about 8 percent since 2000 in response to s strong government subsidy program for orchard development.

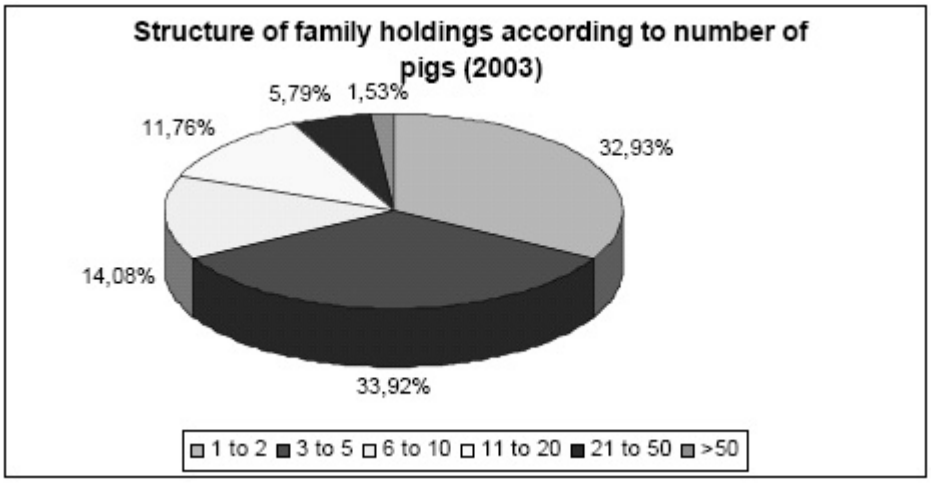
8. Cattle production (breeding) is the most important livestock enterprise in the Republic of Croatia (with 40 percent share in livestock production, including milk production) and also one of more important agriculture activities. Since independence in 1991 cattle numbers have decreased by about 40 percent and dairy cattle by about 35 percent. While dairy cow numbers have fallen significantly, total milk production now exceeds pre-independence levels following a

200 percent plus rise in cow productivity, which reached 4,485 liters in 2005. While dairy herds are small, having less than 3 cows on average (in 2003 only 2 percent of farms had more than 10 cows) and cow productivity falls well short of EU norms, which exceed 6 ton per cow per annum, there are strong indications for continued improvement in both cow productivity and herd size in the Croatian dairy sector. About 23 percent of total milk production occurs in the 3 project counties.

9. In 2003[5], there were 86.269 agricultural holdings with beef cattle, of which 85,930 (99.6 percent) were family holdings and 339 (0.4 percent) were farm enterprises. The production structure is based on small, fragmented, mixed farms with poor animal housing, hygiene and environmental conditions, with 77 percent of the family holdings have up to 5 cattle, 18.3 percent with up to 15 cattle and 4.7 percent with 16 or more cattle. For the larger farm enterprises, one third (32.4 percent) have up to 20 cows and two thirds (67.6 percent) keep more than 20 cattle, of which 25.4 percent or 86 farms have more than 100 cattle.

10. Pig production is also small scale. In 2003, there are 215,240 farm holdings having pigs including 214,814 family holdings having 1,726,895 pigs (av. 8 pigs/farm) and 426 legal entities having 197,777 pigs (av. 464/farm). Pig production is concentrated in 5 counties of central and eastern Croatia, namely Osiječko-Baranjska (15 percent), Vukovarsko-Srijemska(11 percent), Bjelovar-Bilogora (10 percent), Koprivnica-Križevci (9 percent) and Zagreb County (9 percent) where the pig population on private holdings averages about 12/farm. Table 2 shows the structure of pig ownership on family farms.

Table 2: Structure of pig ownership on family farms



11. Poultry production, predominantly for broilers and turkeys, in contrast to other forms of livestock production, is largely through more industrial scale enterprises. While an estimated 347,000 farms hold poultry, just 0.14 percent of those farms account for 56 percent of total poultry production and these commercial farms are heavily concentrated in Varaždinska county.

[5] 2003 Agriculture census

Institutional Setting

12. Croatia has several governmental organizations and public authorities responsible for protecting soil and water from adverse agricultural practices. The MAFWM is responsible for a wide range of issues related to agriculture, rural development, fisheries, forestry, hunting and water management. The MAFWM is the main government body responsible for the protection of agricultural land from pollution by harmful substances and integrated water management and related legislation. These tasks are carried out by the Department of Water Management and Department of Water Policy and International Projects, which is, *inter alia,* responsible for protecting water from pollution caused by adverse agricultural practices. Besides making strategic planning and legislation, the MAFWM is also in charge of inspection (agricultural and water), preparation and issuing permits for :

- Mineral fertilisers and veterinary medicines;
- Import and trade of plant protection agents;
- Water management permits for water discharge and trading with chemical substances and preparations that might, after use, be discharged into waters;
- Concessions for water use that exceeds the scope of general water use.

13. The Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC) is responsible for legislative development, strategic planning, permitting, monitoring and inspection in the field of environmental protection. It is in charge of protection of air, soil, climate change and ozone layer protection, coastal zone, sea, waste management and environmental impact assessments. The Ministry of Environmental Protection, Physical Planning and Construction is responsible for the overall policy of environmental protection in providing conditions for sustainable development; protection of air, soil, water, sea, plant and animal life in the totality of their interactions.

14. Croatian Waters is a public company in charge of water management. The tasks of CW are preparation of draft Water Management Strategy, draft River Basin District Management Plans, water management plan (annual investment plan), implementation of the said plan, protection from adverse effects of water, water use in the sense of determining the water reserves and control over their implementation, protection of water in the sense of monitoring and determining the quality of water, and application of measures for the prevention and reduction of water pollution, issuing of the water rights acts and keeping water books and management of the Water Information System, income planning and financing water management, and calculation and collection of water charges.

15. The Croatian Environment Agency (CEA) is in charge of collecting and processing various data on the environment. It is also responsible for the monitoring of environmental pollution, maintaining databases with environmental information and for providing statistics data required for reports on the national state of the environment.

16. The Croatian Agricultural Extension Service Institute (CAEI) is the main agricultural advisory service in Croatia. The organisation is an independent legal entity, but has responsibility to implement MAFWM policy. Currently the organisation employs some 180 people and has regional offices in each county. The CAEI provides technical recommendations,

instructions and practical examples of new technologies and management practices. It has also been active in publishing and production of various other extension materials. CAEI services are free to all family farms.

17. The Croatian Soil Institute (CSI) monitors the state of agricultural soils and their degree of their pollution and provides expert services on soil, manure and fertiliser analysis, nutrient pollution control and integrated nutrient management. The organisation has some fifteen staff and runs a soil testing laboratory.

18. Both the Osijek and Zagreb Faculties of Agriculture have departments dealing with soil and water protection and run laboratories capable of performing soil and water tests.

19. The Environmental Protection and Energy Efficiency Fund has been established as an independent legal entity with public authority. It is an extra-budgetary fund providing additional financing for environmental projects. The activities of the Fund are mostly directed toward investments related to the construction of new and rehabilitation of existing landfills.

Agriculturally Derived Nutrient Load to Croatian Waters

20. Croatian farm level and trade statistics constrain the accurate estimation of nutrient application in agriculture, however, available national statistics and FAO data indicate that Croatia is one of the most intensive fertilizer users in Europe. In 2001, Croatian consumption of nutrients deriving from fertilizers on arable land was some 25 percent more than EU-15 and substantially higher than in other transition countries. In the period 2001-2004, Croatian average annual fertilizer nutrients consumption per hectare of utilized agricultural area (UAA) was 58 percent higher than in EU-15 (194 vs. 123 kg nutrients). The Croatian livestock population[6], estimated at about 800,000 LU or 0.8 LU per UAA, is than 50 percent of its levels in the 1980's. It is estimated that Croatian livestock produces some 65,000 tons of nitrogen and 33,000 tons of P_2O_5 annually. Recent analysis using 2003 agricultural census data indicates a surplus of 155 kg N/ha of UAA, well above earlier, less empirical estimates of 50,000-80,000 kg N/ha of UAA. The recent analysis further indicates that, in Croatia, much more N (63 percent) derives from fertilizers than from livestock, which supplies only 19 percent of all nitrogen (compared to 50 percent in the EU). In Croatia, therefore, N derived from manure is less critical than the nitrogen load from fertilizers, emphasizing the critical importance of effective fertilizer management in the application of GAP and reduction of nitrate pollution.

Policies for Nutrient Pollution Control

21. Croatia's policies efforts on nutrient pollution control are focused on aligning national legislation with that of the EU. This demanding task consumes most of the administrations' time, energy and human resources. Regulations controlling negative environmental impact due to nutrients derived from agriculture are at an early stage of development. EU CAP cross compliance measures are not yet in place, however, the Government is aware of this need and has recently amended the regulation on agricultural subsidies to require all Croatian farmers claiming direct payments (about 100,000 farmers) to farm in accordance with "*good environmental practice*". Croatia is currently preparing the Code of Good Agricultural Practice (CGAP) and the *Law on*

[6] 2003 Agricultural Census.

Fertilisers and Soil Amendments prescribes that the use of fertilisers should be used "in accordance with the principles/code of good agricultural practice". The *Ordinance on the Protection of Agricultural Land from Contamination by Harmful Substances* also includes some elements of a CGAP. The *Law on Agricultural Land* prescribes measures for protecting land against adverse agricultural practices, regulates the application of harmful substances to the soil and enquires that agricultural land is well managed. The *Law on Fertilisers and Soil Amendments* regulates quality, quality control, labelling, trade and inspection of livestock manure, fertilizers and soil improvers. The *Act on the Financing of Local Self-Government and Administration Units* includes a rarely used provision enabling local governments to tax the owners of neglected agricultural land.

22. *Penalties for Water Pollution***.** Farmers failing to meet legal requirements in regard to water protection from nutrients deriving from agricultural sources may be fined up to several thousand Euros. Inspection, however, is mostly confined to enterprise farms and discovered breaches have resulted in few prosecutions.

Government Subsides and the Environment.

23. Croatian agricultural subsidies, for which approximately 150,000 registered farmers are eligible, are administered by the MAFWM. In recent years, MAFWM support for the sector has hovered around EUR 300 million, of which the majority is used for market support measures. Additional, largely un-quantified district and municipal subsidies are also available to registered farmers. Subsidies that directly impact on Nitrates include support for the intensification of crop production through input subsidies and commodity price support, subsidies for expanding cattle and pig herds and an uncapped LU/ha subsidy for maintaining livestock on pasture. Support for organic farming for a range of commodities provide a countervailing measure, however, their levels are modest when considered against the additional registration and production costs associated with organic farming. Under its SAPARD program, the government has also included a sub-measure to support on-farm manure storage; however, in the absence of any supporting extension program, it has had little or no uptake. An indirect subsidy to the State-owned fertilizer company (now under privatization) in the form of a reduced gas price lowers N-based fertilizer prices on the Croatian market, amplifying the negative environment impact of crop intensification subsidies.

Environmental requirements for manure storage

24. At present Croatia has no agri-environmental programme or specific legislation regulating manure management. The *Act on Animal Husbandry* requires management practices to "comply with environmental legislation requirements", which it fails to specify. The 2003 *Act on Amendments of the Act on Animal Husbandry* envisages fines in the range EUR 680-1,360 for those keeping animals "against the environmental protection legislation". The 2006 Act on Amendments of the Act on Animal Husbandry prescribes that livestock manure should be handled "in a manner which does not threaten the environment" and that manure storage facilities should comply with "prescribed technical and technological requirements", which are not yet prepared, but is in progress through the CAEI and due by June 2007. The 2001 Law on Organic Agriculture and subsequent directives and ordinances became effective in 2003, and is inconsistent in parts, a situation that the MAFWM is currently remedying. Besides

aforementioned, Croatia has no comprehensive legislation for protecting water from nutrients deriving from agricultural practices, but aims to have a Water Framework Directive 2000/60/SE prepared by 2008.

Soil and Water Quality Monitoring

25. Pursuant to the Law on Environmental Protection, the Croatian Environmental Agency (CEA) is in charge of the Environment Information System (EIS). The EIS collects and disseminates environmental information on water, soil, air, biodiversity, waste, climate change and all other subjects relevant to environmental protection and related policies. The EIS, not yet fully effective, is developed by MAFWM and CW.

26. **Soils testing**. Croatia is developing a Croatian Soil Information System (CROSIS), which will be aligned with the requirements of the European Information Service Centre (EISC), however, its development remains incomplete. At present, there is no systematic national collection of data on soil damage and the available data are incomplete and poorly organized, preventing reliable soil damage assessments. In 2003, the Croatian Soil Institute initiated a soil analysis project for the project counties of Osiječko-Baranjska and Vukovarsko-Srijemska counties, which now includes 11,900 soil samples from 41,500 hectares of arable fields for Osiječko-Baranjska County alone. The Agroecology Institute of the University of Osijek also manages a soil testing laboratory and maintains a test database that currently includes some 10,000 results including 8,000 from the Slavonia and Baranja regions. The Agroecology Institute staff have been developed "fertilization calculator" software package that is adapted for the Croatian circumstances, notably for the region of Slavonia and Baranja - the most intensive agricultural areas in Croatia.

27. **Water Testing.** The program of surface and groundwater quality monitoring is the responsibility of MAFWM and CW. The program of water quality monitoring in the Republic of Croatia encompasses monitoring of water quality on 330 monitoring stations on watercourses, lakes and accumulation lakes, 277 monitoring stations on groundwater, and 82 monitoring stations in the coastal sea impacted by land-based pollution. The program of water quality monitoring is organized so as to measure the water quality in parts of watercourses with significant inflows into the watercourse and discharges of industrial and municipal wastewater, in more sensitive areas (groundwater and surface waters that are used or are planned to be used for water supply, mountain streams up to the settlements, watercourses in karst areas up to the settlements, waters in national parks and nature parks), and in parts of watercourses where the water resources are used or are planned to be used for specific purposes. The program of water quality monitoring also contains the program on trans-boundary waters that are tested within the bilateral cooperation with the Republic of Slovenia and Republic of Hungary and program of water quality testing on national waters and coastal sea impacted by land-based pollution. The programs of groundwater quality monitoring include 124 monitoring stations in the zones of contribution of well fields of the City of Zagreb, 84 monitoring stations on well fields of the river basin district of Sava, Drava and Danube, and 19 monitoring stations on the river basin district of Istrian and Littoral Basin and Dalmatian Basin. The program is developed and implemented by CW through Main water management laboratory of Croatian Waters and other licensed laboratories for testing wastewater quality.

All legal persons discharging wastewater in accordance with water rights permits have the obligation of testing wastewater quality. Wastewater testing is performed by authorized laboratories, pursuant to MAFWM authorization.

28. The Ministry of Health and Social Welfare is responsible for the Regulations on Sanitary Quality of Drinking Water. Testing of sanitary quality of drinking water is performed by the Croatian National Institute of Public Health and County Public Health Institutes.

The Project Area

29. **Physical, Geographic and Climatic Characteristics.** All three project counties: (i) Osiječko-Baranjska; (ii) Vukovarsko-Srijemska; and (iii) Varaždinska are located in the Pannonian region and have comparable physical, geographical and climatic characteristic. The Pannonian plan is Croatia's prime agricultural area producing the majority of the country's cereals and industrial crops. All three counties have well developed agriculture, livestock and associated food industries including vegetable oils and sugar, meat processing, dairy and wineries.

30. The counties experience a moderate continental climate. Mean monthly temperature in the coldest month of the year is between -10°C and 10°C. Mean annual precipitation ranges between 600 and 1000 mm and with the largest precipitation occurring during the growing season. The topography is predominantly flat containing typically medium to heavy consistency fertile alluvial soils including chernozem and eutric brown soils, Croatia's most fertile soil types, however, these soils have, in the last hundred years of cultivation, lost 50-70 percent of soil organic matter with the humus content falling from 4-6 percent to 1-2 percent on average. Some 60 percent of arable land soils in these regions suffer from seasonal water-logging, enhancing soil acidity, which is the major factor limiting soil fertility and the effective utilisation of applied nutrients (particularly phosphorus). One third of the soils have a pH value less than 5.5. Less than 0.2 percent of the agricultural land in these three counties is under irrigation.

31. **Number and type of Farms.** Family farms prevail in the project area, which also contains all the major Croatian agro-kombinats. Private farming occupies 63 percent of the 344,000 ha of arable area, with the majority of farms having <5 ha of arable land and keeping between 2 and 20 livestock units (LU), with medium scale farmers keeping 20-50 LU. The Project area contains 25.6 percent of all LU in Croatia. Table 3 provides a breakdown of farm numbers in the project area, which comprise 22 percent of total farms in Croatia. Table 4 provides the breakdown of herds in the project area reaching the proposed threshold for project intervention. Detailed breakdowns of farm numbers by county and livestock population are available in the project working papers.

Table 3: Number of farm households and enterprises in the project area (2003 Ag. Census)

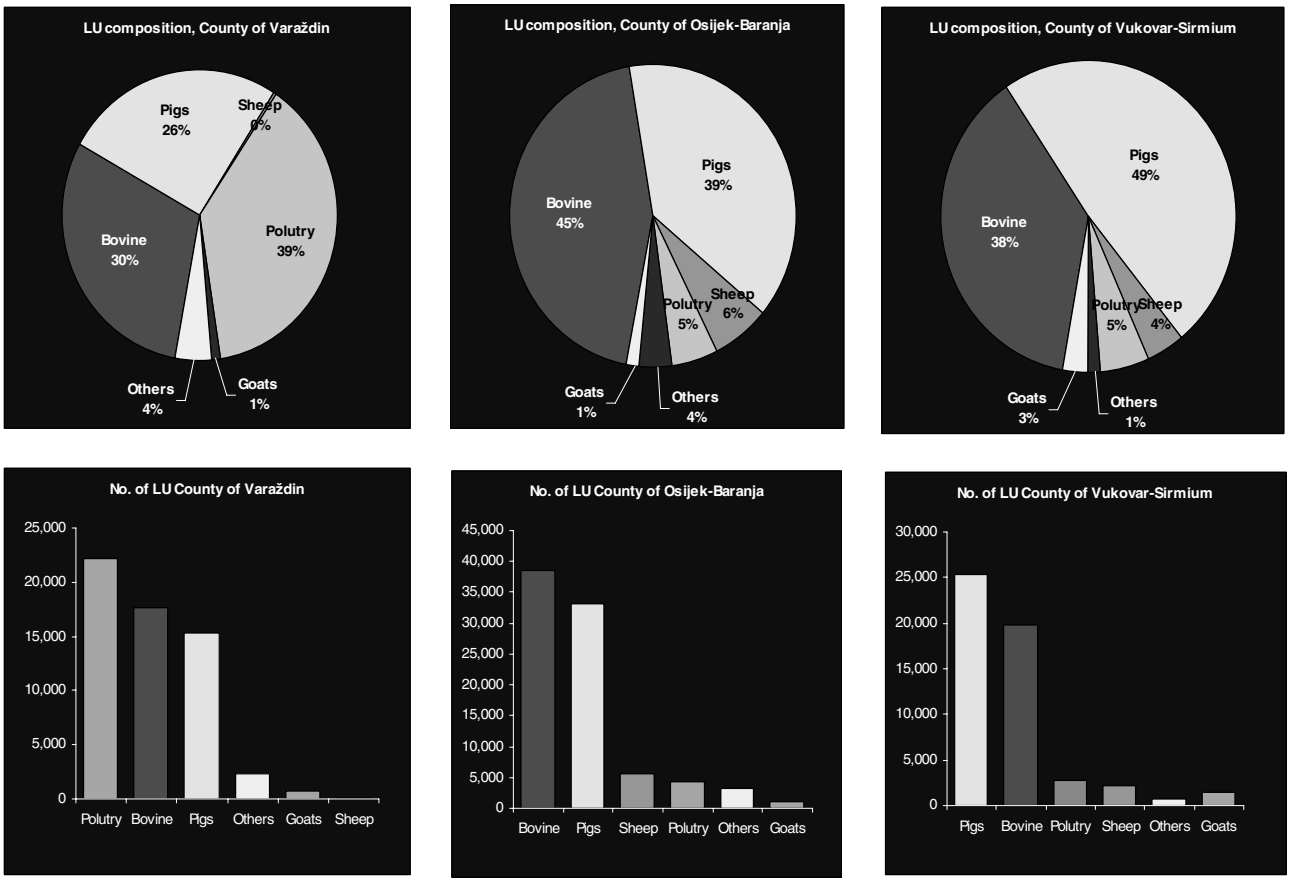
	No. of households with UAA	No of business entitites with UAA	Total
Croatia	437,247	1,079	438,326
Osijek-Baranja County	38,389	206	38,595
Vukovar-Sirmium County	25,052	115	25,167
Varaždin County	32,616	36	32,652
Total	96,057	357	96,414
% of Crotaia	22.0	33.1	22.0

Table 4: Number of family farms and agricultural companies with >10 cattle animals and > 50 pigs.

	> 10 cattle animals		> 50 pigs		Total	
	Family farms	Agric. companies	Family farms	Agric. companies	Family farms	Agric. companies
Osijek-Baranja County	598	54	578	37	1,176	91
Vukovar-Sirmium County	608	19	455	13	1,063	32
Varaždin County	184	12	5	5	189	17
Total	1,390	85	1,038	55	2,428	140

32. **Livestock production.** In Osiječko-Baranjska and Vukovarsko-Srijemska counties, cattle and pigs account for more of 85 percent of all LU in those counties, while in Varaždinska county poultry is predominant, accounting for 39 percent of LU (Figure 1). Detailed breakdowns of farm numbers by county and livestock population are available in the project working papers.

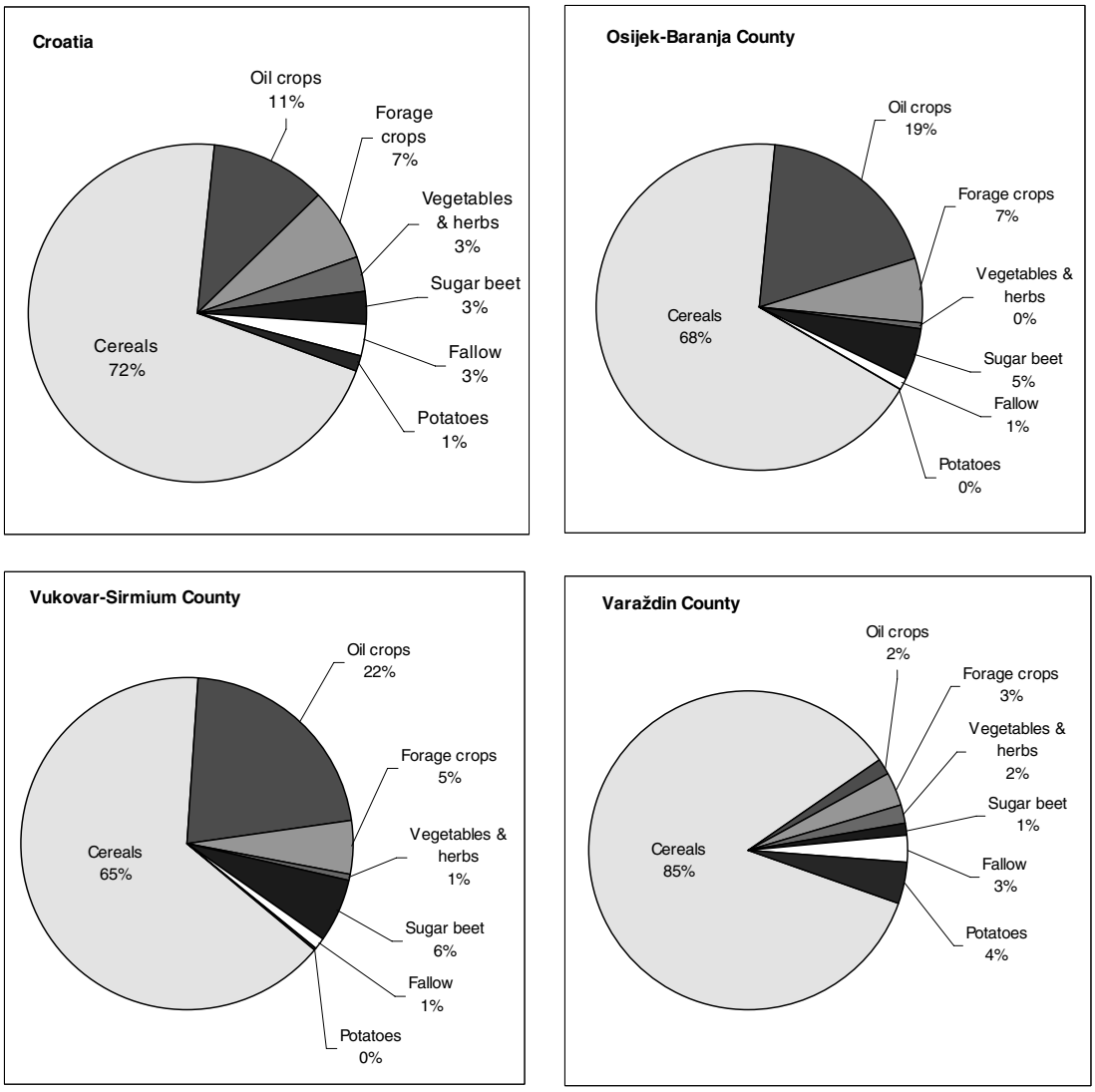
Figure 1: Breakdown of livestock populations in project counties



33. **Agriculture production.** Cereals dominate agriculture production, occupying about two-third of the entire arable land, followed by oil crops in Osiječko-Baranjska; and Vukovarsko-Srijemska counties and potatoes in Varaždinska county with forage crops the third

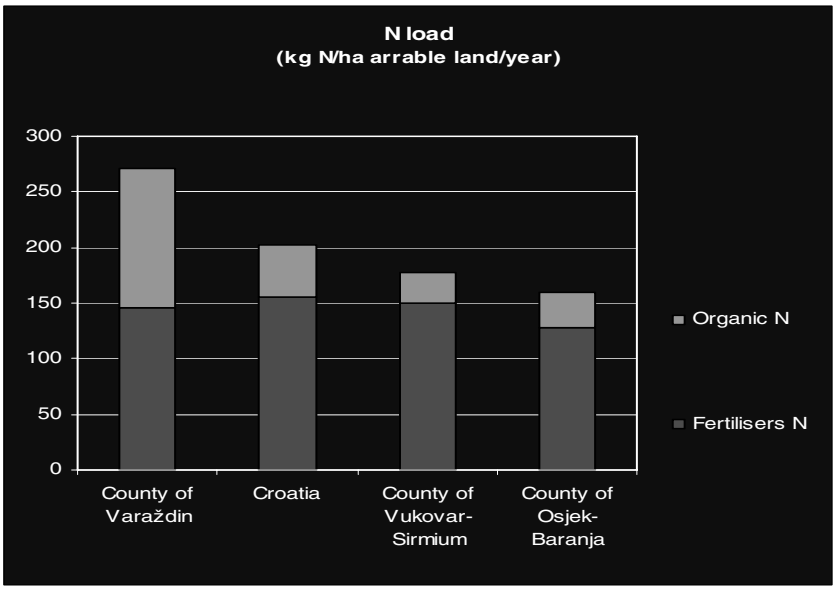
most important commodity (Figure 2). This cropping pattern involves a very narrow crop rotation, with little use of legumes crops or pastures. A three-year crop rotation consisting of winter wheat, maize and potatoes constitutes the most popular crop rotation practice, with a crop rotation comprising just maize and winter wheat also common. Detailed breakdowns of cropping patterns by county and farm size are available in project working papers.

Figure 2: Pattern of agricultural activities in the project area and Croatia



34. **Nitrogen Load**. In Osiječko-Baranjska; and Vukovarsko-Srijemska, manure makes negligible contribution to N load (15-20 percent) in comparison with applied fertilisers, however, in Varaždinska County due primarily to the intensive poultry production, fertilisers and manure make approximately equal contribution to N load (Figure 3).

Figure 3: Nitrogen load on arable land by County



35. **Water Quality and Nitrates.** Regional data indicate that in the period 2000-2006, some 57 percent of all analysed water samples from private (farmers') wells in Croatia did not meet the Croatian minimum acceptable concentration (MAC) requirements for nitrates. In Osiječko-Baranjska county 39 percent exceeded MACs, while in Varaždinska and Vukovarsko-Srijemska counties the figure was about 46 percent, indicating the need for further testing and increased awareness of this risk, which should be built into the project communication strategy.

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

CROATIA: Agricultural Pollution Control Project

1. Recognizing the importance of reducing nutrient loads to Croatian water bodies, the government of Croatia has sought technical and financial assistance from various international donors in its efforts towards improving the quality of Croatia's surface and groundwater bodies. The aim is to improve the overall performance of the agricultural sector, protect the environment and implement measures for compliance with the EU Nitrates Directive. Several projects are currently under implementation, including, *inter alia*:

IBRD Project

2. *Agricultural Acquis Cohesion Project*. Financed by an IBRD loan, the project, for which the GEF project is an extension, aims to develop sustainable systems and capacities within the Government to enable the country to capture benefits in the agricultural sector accruing from accession to the European Union and meet EU *acquis* requirements. These outcomes are envisaged to be achieved through: (i) implementation of EU *acquis* in rural development; (ii) empowerment of MAFWM management and administration; and (iii) ensuring safe food and SPS conditions. A key activity under component (i) would include a program of investments and technical assistance to private and public sector farmers and agro-processors in environmentally friendly agricultural practices so as to "keep their land in good agricultural condition". The proposed project will also help expedite Croatia's efforts with accreditation of AE measures by the IPARD agency, at the same time ensuring that the measures are of national priority and EU-aligned. By assisting the government of Croatia to accredit agri-environment measures under IPARD, the project will help in leveraging substantial investment grants for nutrient mitigating activities.

EU-Supported Programs

3. *Capacity Building and Development of Guidelines for the Implementation of the Water Framework Directive*. Supported by the EU-CARDS 2004 Program, the overall objective of the project is to improve the water quality standards and water management in Croatia in line with EU standards and requirements. It also strives at further institutional and administrative capacity strengthening of the Croatian water management administration as well as relevant state institutions, stakeholders and NGOs.

4. *Approximation of Croatian Water Management Legislation with the EU Water Acquis.* Supported under EU-CARDS 2003, the project aims at supporting MAFWM with: (a) completing a legal, administrative and institutional assessment and identifying regulatory actions for further approximation to the EU water *acquis*; (b) preparing a draft Strategy and Action Plan for the approximation of Croatian legislation with EU water acquis as a part of the overall National Environmental Accession Strategy developed under the CARDS 2002 project led by MEPPPC; (c) conducting, for the identified areas, a horizontal impact assessment on Nitrates, Drinking Water, dangerous substances and UWWTD; (d) drafting of the compliance plan for the UWWT Directive; and (e) definition of priority areas for future activities of the SAPARD Program - Agriculture and Rural Development Plan 2006.

5. *EU-LIFE Project*. Within the framework this project, the EU is supporting the development of a Croatian soil monitoring program. It aims at developing a Soil Monitoring Program that will serve as the basis for the development of a harmonized and coherent Croatian soil information system, compatible with the European Soil Information System – EUSIS, and will provide vital data for policy-making and international networks.

6. *Investments in Agricultural Holdings*. This SAPARD-supported measure provides for investments in the construction and/or adaptation and/or equipping of animal sheds, including "*investment in animal manure, slurry reservoirs and specialized manure*", which is listed as a (sub) measure eligible for stand-alone financing. For investments in the construction of livestock farms, applicants must demonstrate at the end of the investment that manure is stored and managed according to EU standards (details will be elaborated in the "Ordinance on SAPARD program implementation"). The program requires 50 percent co-financing (in-kind contribution does not count towards this). So far, only one round of grant distribution has been realized.

UNDP Project

7. *Danube Regional Project*. The project involves all Danube Basin countries and covers some 80 activities including analysis of agricultural policies and pilot projects on the reduction of nutrients and other harmful substances from agricultural point sources and non-point sources. The project has produced several policy analysis documents and organized several capacity building events on agricultural pollution control. In 2004, it provided support in developing the concept of Best Agricultural Practice (BAP) in the Danube River Basin countries, including improvements in the management of livestock manure, minimizing the use of fertilizers, better use of crop rotations and the creation of buffer zones. In 2005, the Danube Regional Project provided a EUR 5,000 grant to the Croatian office of the Regional Environmental Centre in order to implement a training program on best agricultural practices in the Danube river basin area of Croatia.

Annex 3: Results Framework and Monitoring

CROATIA: Agricultural Pollution Control Project

Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
To assist the Government of Croatia to significantly increase the use of environmentally friendly agricultural practices by farmers in Croatia's Danube River Basin in order to reduce nutrient discharge from agricultural sources to surface and ground water bodies.	At least 40 percent of the farming population in the project areas adopting preventive and remedial measures to sustainably reduce nutrient discharges. Increased national awareness of significance and benefits of project actions and their impact on water quality and overall community wellbeing.	Determine whether nutrient reduction technologies are effective, are readily adoptable by farmers, and whether training and advisory systems are reaching the intended clients. Determine government capacity to award and manage grants for implementation of environmentally friendly agricultural practices related to manure management. Determine whether public information programs have achieved adequate coverage.
GEO	**Project Outcome Indicators**	**Use of Project Outcome Information**
The global environment objective is to improve the quality of the waters of the Danube River and Black Sea through reduction, over the long term, in the discharge of nutrients (nitrogen) into Croatian water bodies leading to the Danube River and the Black Sea.	At least 10% reduction in discharge of nutrients into surface and groundwater in the three pilot project areas.	Determine whether project-developed interventions are successful and being replicated on a wider scale.
Intermediate Outcomes	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Component 1. Mitigating nutrient loads to Water bodies from Manure and its by-products (slurry) Improved manure management practices adopted by households with livestock in targeted counties. Water quality monitoring, analysis and reporting capacity of Croatian Waters strengthened.	Percentage of livestock farms in three participating counties adopting improved animal waste management practices. Unified set of monitoring guidelines and standards for soil and water adopted, and monitoring program implemented.	Annually, review progress of implementation/distribution of grants. At mid-term, assess whether beneficiary criteria are appropriate and farmer awareness adequate. Modify packages and increase awareness if uptake low. PY1 – before start of manure storage constructions install piezometers in selected farms and establish baseline water/soil quality parameters. Afterwards, assess the change in the level of nitrates.

Component 2. Development and promotion of agri-environment measures EU compliant Code of Good Agricultural Practice (CGAP) legislated. CGAP technology successfully tested and applied.	Promulgation of CGAP legislation. At least 200 ha of pilot GAP demonstration sites in each of the three counties. Multi-annual applied research into economic crop fertilizer response successfully completed. Percentage of cropped area in the project counties under relevant nutrient reduction measures.	Annually, confirm progress after implementation of project activities, and adjust intervention strategy, if required.
Component 3. Public Awareness and Replication Strategy Rural populations aware of actions required to reduce nutrient loads to water bodies.	Percentage increase of rural population in project and non-project areas aware of and initiating / implementing actions related to nutrient reduction.	Find more effective ways to reach target groups, if necessary. Review/restructure communications program if monitoring program indicates poor awareness of environment threat and solutions.
Component 4. Project Management Efficient project management ensuring smooth implementation of project activities.	PIU fully functional and operating effectively to manage both AACP and GEF activities. Continued strong support from Project Steering Committee. Project progress and financial reports are initiated and submitted in a timely manner. Project audits and procurement and financial management supervision mission reports uniformly good results. Monitoring and Evaluation system established and operating, providing guidance for improving project and Nitrates management.	Mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions. Review implementation arrangements, staff capacity and leadership if Monitoring system indicates negative results. Failure to manage the project effectively would lead to delays in implementation.

Arrangements for Results Monitoring

Institutional Arrangements

1. The main institutions in charge of APCP M&E are the MAFWM PIU, the CAEI and Croatian Waters. Selected indicators of the APCP M&E will feed into the planned Croatian Waters national database on surface and groundwater pollution. The PIU will design a simple Management Information System for M&E, reporting formats for each component, including targeted annual performance objectives and monitoring indicators using the results monitoring framework details as the basis. These indicators include evaluating the project's impact by monitoring soil and water quality. Semester reports will cover progress in physical implementation, the use of project funds and project impact. The Semester reports will be submitted by the PIU to the Project Steering Committee and to the Bank within forty-five days of the end of each six-month reporting period. These Semester progress reports will include an implementation plan and work program for the next six months following the reporting period. The format of reports will be agreed with the Bank. The expected outcomes related to changes in behavior and awareness campaigns will be measured at baseline, mid-term and end of project through surveys commissioned by the PIU (see below).

Data Collection

2. Croatian Waters will be responsible for collecting and providing the data regarding water quality and nitrate pollution. Croatian Waters will sample and test water from the 27 piezometer sampling sites established under the project, in addition to other surface and groundwater sampling sites that already exist in the project counties as part of the national water testing system. Croatian Waters will provide regular summaries of test results for project installed and national sampling sites in the project counties.

3. In addition to the water quality indicators and progress in implementation indicators, the PIU will commission 3 surveys (baseline, mid-term, and end-of–project), aiming to measure the changes in behavior in project area and the outcomes of the awareness campaign. A quick focus group survey was already carried out during preparation, in the three project counties. This exercise will be expanded and rolled out as new farm communities enter the project, using quasi-randomization. In the same time, to demonstrate the impact and benefits of the APCP approach, a control group of (similar) farm communities will be selected and the same indicators will be collected (in the absence of the project). The impact of APCP in the project counties will be then demonstrated using the double difference of the estimates (in time and in project vs. control groups).

4. Finally, since the awareness campaign will be carried out at national level, a national representative sample will be used to measure the outcomes of the campaign.

Measurement of PDO

5. The PDO indicators will be estimated using three different data sources: social surveys, Nitrate pollution surveys, and GoC/EU reports.

a. The behavioral change at community level will be measured through a compound index including two elements: (i) improved waste management practices adopted by households with livestock, and (ii) application of nutrient reduction measures under the Code of Good Agricultural Practices. The first element is measured through a summative index composed of the following indicators (a) separation of animal waste/ manure collection, preventing seepage into the soil; (b) regular (monthly) removal of the manure from the premises to an appropriate disposal spot; (c) the household's animal waste collection spot is located at more than 40 meters from household wells. The second element is also a summative index, which includes: (a) crops rotation, (b) use of natural fertilizers, (c) use of chemical fertilizers and/ or pesticides under the guidance of a specialist and crop nutrient requirement software.

b. The reduction of the nutrients discharge into the water bodies, will be estimated, by the PIU/CAEI, using (i) "proxy" methods, with the inputs from the annually reports of the Statistical Office on the quantities of mineral fertilizers used in the project area, the CAEI reports on the quantities of manure collected and used as organic fertilizer and the contribution at nutrients retention, of the various good agricultural practices implemented (e.g. buffer strips, nutrients management, reduced tillage etc.); and (ii) Croatian Waters test results of samples taken from piezometers installed in selected participating farms.

c. The strengthened institutional and regulatory capacity will be measured using GoC and EU reports on Croatia's progress, as well as by the frequency, timely delivery, and data completeness of the monitoring reports issued by the MAFWM PIU and Croatian Waters.

Capacity

6. The PIU Nitrates Management Specialist will coordinate the M&E program and will commission a M&E contract for the conduct of start-up, mid-term and end-of-project aiming to measure the changes in behavior in project area and the outcomes of the awareness campaign.

Arrangements for Results Monitoring

		Data Collection and Reporting						
Project Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
At least 40 % of the farming population in the project areas adopting preventive and remedial measures to reduce nutrient discharges	0	5%	15%	25%	40%	Annual PIU progress reports	Social surveys CAEI studies	PIU / pilot counties / CAEI
Increased national awareness of linkages between local actions and impact on water nutrient load	TBD (Social Assessment)		10%		25%	Project mid-term review and completion reports	Sample surveys	PIU and CAEI
At least 10% reduction in discharge of nutrients into surface and groundwater in the three project regions	0	0%	2%	5%	10%	Annual PIU progress reports	Croatian Waters water testing program	Croatian Waters
Intermediate Outcome Indicators								
Component 1.								
Percentage of livestock farms in three participating counties that have animal waste storages	6%	6%	10%	15%	25%	MAFWM PIU semester progress reports	CAEI studies	PIU / pilot counties/CAEI
Unified set of monitoring guidelines and standards for soil and water adopted and implemented	Discrete monitoring framework for water and soil		Proposed unified monitoring system	Monitoring framework adopted	Satisfactory implementation to meet government and EU requirements	Annual PIU progress reports	PIU monitoring program	PIU

		Data Collection and Reporting						
Project Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Component 2.								
Implementation of Code of Good Agricultural Practices	No Implementa-tion		Implement ation started			Annual MAFWM PIU project progress reports	MAFWM Annual report	PIU / MAFWM Directorate of Agriculture
At least 200 ha of pilot GAP demonstration sites in each of the three counties	0	30 ha	100 ha	200 ha	200 ha	Annual MAFWM PIU project progress reports	CAEI field reports	PIU and CAEI
Multi-annual applied research into economic crop fertilizer response successfully completed	N/A	Research contract for 3 main crops in each project county			Research results published	Annual MAFWM PIU project progress reports	On-farm adaptive research trials	PIU/Research contractor
Percentage of cropped area in the project counties under relevant nutrient reduction measures	<5%	5%	10%	20%	30%	Annual MAFWM PIU project progress reports	CAEI field reports & social surveys	PIU/CAEI
Component 3								
Percentage increase of rural population in project and non-project areas aware of and initiating / implementing actions related to nutrient reduction	TBD		TBD		TBD	Project mid-term review and completion report	Social surveys	PIU/CAEI
Component 4								
PIU fully functional and operating effectively	Satisfactory	S	S	S	S	Six-monthly	Bank supervision reports	Bank Task Team

		Data Collection and Reporting						
Project Outcome Indicators	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Continued strong support for the Steering Committee	NA	S	S	S	S	Six-monthly	Bank supervision reports	Bank Task Team
Project progress and financial reports are initiated and submitted in a timely manner	NA	S	S	S	S	Six-monthly	Project six monthly report	PIU
Monitoring and Evaluation system established and operating, providing guidance for improving project and Nitrates management	NA	Multi-annual M&E contract awarded				Annual M&E reports	M&E studies	PIU
Project audits and procurement and financial management supervision mission reports uniformly good results	NA	S	S	S	S	Audits Semiannual supervision missions	Financial statements Supervision missions reports - Aide Memoires	PIU / WB Task Team

Annex 4: Detailed Project Description

CROATIA: Agricultural Pollution Control Project

1. The proposed GEF project is part of an overall program of the government of Croatia to undertake actions for EU compliance in the agricultural sector. Towards this, the government has already borrowed US$30 million through the IBRD-financed Agricultural Acquis Cohesion Project (AACP), which will, *inter alia,* (i) build capacity within MAFWM to support a sustainable and competitive agricultural sector in Croatia compliant with EU *acquis* requirements; (ii) establish a transparent and efficient payment system for the disbursement of GEF-financed and subsequent government grants for structural reform in the agri-environment sector; (iii) reorganize and reinforce government inspection services supporting environment regulations; and (iv) provide project management. GEF funded activities will assist the government in furthering its agenda for EU compliance in the agricultural sector, specifically, implementation of the Nitrates Directive, by providing technical assistance and financing investments for reducing nutrient loads to water bodies from agricultural sources.

2. The proposed project is a pilot activity to be implemented in three selected counties of Croatia: (i) Osiječko-Baranjska; (ii) Vukovarsko-Srijemska; and (iii) Varaždinska. The selection of these counties was determined on the basis of their agricultural profile. All three counties are characterized by intensive farming practices with growing threats of nutrient pollution to local water bodies. The three counties combined include an estimated 2000 private farms that fit project eligibility requirements. War-related damage to manure storage and water monitoring infrastructure in Osiječko-Baranjska and Vukovarsko-Srijemska counties and the high concentration of medium scale poultry farms in Varaždinska county contributed to the selection of these counties.

3. The project, to be implemented over four years, at an estimated cost of US$20 million (GEF Grant US$5.0 million, AACP associated financing US$13.9 million and beneficiary contribution US$1.1 million), will include the following components, which will not only help improve the waters of the Danube River and Black Sea but also assist Croatia to implement the EU Nitrates Directive.

Component 1: Mitigating Nutrient Loads to Water Bodies from Point-source Pollution (Manure Management). (Total Cost: US$14.70 million, of which GEF US$ 3.36 million, Associated IBRD financing US$10.40 million and Grant Beneficiaries US$0.93 million)

4. This component will assist the government of Croatia to promote improved manure management practices with the objective of reducing nutrient loads to the surface and ground water bodies of Croatia. Activities under this component will also thereby assist Croatia to implement the EU Nitrates Directive 91/676/EEC *concerning the protection of waters against pollution caused by nitrates from agricultural sources*.

5. *Nitrates Mitigation Fund:* The project will establish a US$2.66 million (US$3.54 million, including beneficiary contribution) Nitrates Mitigation Investment Fund within the MAFWM Payment Directorate to finance grants for up to 75 percent of the cost of manure storage and

management systems. In the counties of Osiječko-Baranjska and Vukovarsko-Srijemska, medium scale livestock farmers having 10-100 cows, 15-150 fattening beef cattle, 40-400 sows or 100-1000 grower/fattening pigs will be eligible for grants of up to 75 percent of the cost of establishing on-farm, EU compliant manure storage facilities. In Varaždinska county, in addition to cattle farmers, poultry farmers will also be targeted, with farms of 2,500 to 12,500 layers or 10,000 to 100,000 broilers per annum being eligible for matching grant assistance for storage-based manure management systems. Grants will also be made for off-farm storage and for manure pumping and innovative distribution equipment in some cases.

6. **Priority actions for Osiječko-Baranjska and Vukovarsko-Srijemska Counties.** The project will test a range of strategies for tackling manure management over the course of the project. Farms with no manure storage facilities will be the primary target and will be stimulated to construct manure storage facilities to EU standards. Farms that have some, albeit inadequate manure storage facilities will be eligible to have those improved and/or extended. Farmers that have found innovative, environmentally sound and cost-effective solutions to manure management will be a particular target for the project.

7. In developing manure storage solutions the following considerations will be taken into account in the design:

- demonstration of a variety of possible options for manure storage;
- manure quality improvement and manure application;
- suitability for different types of farmers and livestock production systems;
- safeguarding of manure quality;
- use of available, suitable and cheapest possible materials;
- availability of the skills required in constructing and operating (including social ones);
- effectiveness of the solution;
- requirements in terms of resources (costs), knowledge (training), permits/legislation and possibility of safeguarding quality control in construction.

8. Farms without manure storage facilities will be subsidized to construct manure storage platforms/sumps to EU design standards and, in the case of platforms, connected with a liquid manure pit so that seepage can be stored. Both the platform and associated pit and sludge sumps will be designed to accommodate up to six months production of farmyard manure (FYM) including allowance for any planned increment in herd size. Farms with some, though inadequate facilities for storing FYM will be subsidized to expand the existing concrete slabs and/or for the addition of a liquid manure pit. In a number of villages in the project area on-farm space does not allow for the construction of an adequate manure storage facility. Their only solution would be the construction of communal storage pits outside of the village, however, due to the complex social infrastructure required to facilitate this process it is not advised to experiment with communal manure storages within this project. Other farms to be excluded from the project include:

- Small scale farmers, who are unlikely to be able to afford the necessary investments and whose long term future in livestock farming is unlikely;

- Large scale farmers with plans for improvements, because they are required by municipal legislation to construct new sheds outside the village boundaries. Conditions for their receiving a construction permit include, *inter alia*, the construction of adequate manure storage facilities and the holding of a minimum of 0.5 ha of land available for each LU;
- Other large scale farmers because they already have adequate storage facilities and where minor, affordable adjustments are required;
- In Varaždinska county only cattle and poultry farmers will be targeted.

9. **Manure storage construction.** Despite its cost, the construction of manure storage facilities will primarily be made from concrete. The project preparation process has explored alternatives to concrete but has not come across convincing solutions. Various metal, fiberglass/reinforced plastic and clay materials can also be employed in constructing manure storage. The market for various slurry tanks, basins, lagoons etc. made from this material is emerging in the EU and notably the USA. However, these alternatives are not well known or adopted in Croatia. Their application in EU Member States is also not widespread and concrete is the most commonly used material for constructing manure storage. Another alternative evaluated was the use of pre-fabricated concrete elements, however, the current price of these systems and the level of technology (joints not strong and durable enough) in Croatia make this technology unviable in the medium term. Manure storage pits will have a 15-20 cm GW cca gravel bedding layer compacted to 30 MPa under the foundation slab. Waterproof and chemical resistant concrete of strength class C30/37 will be used for constructing manure pit floors and walls. The concrete will contain steel reinforcement of 70 kg/m^3. Sealing tape will be used between upright walls and foundation slab, construction joints and working joints. All concrete poured will be tested, with one sample per 10M^3.

10. **Priority actions for Varaždinska County.** Varaždinska county has some cattle, but few pigs and faces a severe problem with poultry (chicken) manure disposal. It is the most intensive poultry production region in Croatia, with a poultry density of nearly 100 birds per hectare of UAA. Poultry litter and manure are presently dumped on nearby agricultural land creating a source of odor, infection and water pollution. The project will assist farmers to build storage systems for poultry manure and will explore with potential investors the development of a commercial poultry manure drying and pelleting enterprise. The project will provide technical expertise, but not grants for commercial poultry processing. The project will also fund cattle manure storage systems in Varaždinska county.

11. *Manure Application:* The project will not support equipment for transporting and spreading manure waste on farmer's fields.

12. The CAEI nitrates management specialists will assist farmers to apply for grants from the Nitrates Management Investment Fund, which will follow procedures described in the Beneficiary and Procurement Guide. APCP procedures will parallel those applied to SAPARD grants. Documents to be submitted by potential beneficiaries will include, *inter alia,* an application form, evidence of the applicant's municipal registration, evidence of registration in the farm registry and animal identification registry (cattle only); copies of the proposed design and any required construction permits; 3 bids for construction of the facility; and evidence of his/her capacity to pre-finance the investment. Grant application procedures and terms and

conditions for grant payments including the maintenance of construction and financial records are described in the Beneficiary and Public Procurement Guide.

13. *Payment Directorate Support:* The aim of the Project would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions. Towards this end, GEF funds will be used to recruit two additional staff for the Payment Directorate with responsibility to process grant applications for manure storage and assess their implementation. These staff will be absorbed into the Payment Directorate by the end of the Project.

14. *Support for Water & Soil Monitoring and Impact Analysis:* The project will develop and implement water and soil monitoring program to assess the reduction of nutrient loads to surface and ground waters from project interventions. The monitoring program to be supported by the project will help provide incremental support to the ongoing efforts of CWA and the MAFWM's Water of Water Policy and International Projects to align the national water monitoring program with that of EU's guidelines. Due to the fact that: (i) there is a considerable time lag between the implementation of nutrient management practices and measurable evidence of improvement in the quality of waters impacted by the practices; (ii) discharge of nitrates is from several sources (in addition to agricultural practices), such as untreated waste water from industry, household sewage, etc. and since these cannot be cleanly separated out to measure contribution of nutrients from each source, the project will use proxy indicators to monitor nutrient reduction loads from implementation of the environmentally friendly agricultural practices as outlined below under Component 2. The program will also include a systematic sample testing of well water in rural areas, both as a goodwill measure for participating farmers as well as to demonstrate the risk to rural communities from inappropriate nitrates management.

15. To assess nutrient reduction from interventions under Component 1, the project will install up to 27 piezometer sets in selected representative sites to monitor the quality of water flowing out of livestock farms that are implementing GEF financed manure management sub-projects. The project will finance the construction of three sets of piezometers on farms in each of the three pilot counties. Each piezometer set will include 3 piezometers designed to sample water at 5 m, 10 m, and 25 m depths. The project will provide data logging equipment for piezometer monitoring and sampling. The participating farms will be selected according the following criteria:

- type of the livestock production (bovine animals, pigs and poultry);
- variability of the soil types;
- hydrogeological characteristics of the wider area and the groundwater flow direction towards the water recipient;
- the situation within the network of the existing state monitoring of both surface and groundwater quality.

16. The project will also install three sets of three lysimeters in Varaždinska county in the vicinity of selected livestock farm to provide a measure of nitrate and other parameters leaching through the soil. This equipment will be integrated into the CWA ground/surface water monitoring schemes.

17. The PIU will commission the preparation of a Quality Control and Quality Assurance (QC/QA) operational manual with the aim of ensuring that all procedures starting from sampling planning, field work, sample handling, laboratory analysis till the record keeping and documentation would be coherent on all measuring stations and monitoring programs. Groundwater sampled from piezometers on up to a monthly basis, will be tested for ammonium, nitrite, nitrite, total nitrogen and total phosphorus. Newly installed piezometers will be integrated into the program of national monitoring, and in that case the other parameters can be determined. In samples of percolate from lysimeters leaching of nutrients should be monitored, as well as pesticide residues.

Component 2: Development and Promotion of Agri-Environment Measures (Total Cost: US$3.96 million, of which GEF US$1.30 million, Associated IBRD financing US$2.50 million and Grant Beneficiaries US$0.16 million)

18. This component will strengthen the capacity of the Croatian Agriculture Extension Institute (CAEI) to: (i) advise and train farmers on the most cost effective on-farm technologies that need to be employed for complying with the Nitrates Directive with particular emphasis on fertilizer/manure storage and land application based on soil nitrogen balances; and (ii) adapt the Code of Good Agricultural Practices to the needs of the dominant farming systems in the project counties and interpret the Code in a manner that would ensure farmer buy-in. The project will provide information and practical training on, inter alia, nutrient remedial measures, EU principles on project financing, measures to obtain funding support from non-Bank sources, etc. to both beneficiaries (enterprises and farmers). Both formal and on-the-job training will be provided to inspectors, monitors and other staff at local, regional and central levels. To manage the GEF-funded project activities, a technical specialist will be recruited and paid through the GEF grant funds.

19. *Dissemination of Code of Good Agriculture Practice (CGAP)***:** As part of the EU Nitrates Directive, this sub-component will help the MAFWM to disseminate CGAP that incorporates internationally-tested and proven good agricultural practices that are relevant for the diverse Croatian topographic and climatic conditions. The CAEI will interpret the Code in a manner that would ensure farmer buy-in, and develop and publish a user-friendly Guideline that would help farmers understand and implement the relevant provisions of the Code. The publication of the Guidelines would be supplemented with brochures, messages through mass media, agricultural fairs, etc. where farmers would be informed by project-trained CAEI staff and private advisers of the most cost effective on-farm technologies that need to be employed for complying with the Nitrates Directive, with particular emphasis on fertilizer/manure storage and land application based on soil nitrogen balances. The project will support the purchase of one set of specialized field injection equipment for the CAEI to demonstrate slurry based manure management under the GAP demonstration program.

20. *Applied Research Program.* While a range of appropriate CGAP technology has already been tested and proven in the Croatian environment, Croatia has relatively little information on economically optimum crop fertilization. The project will contract a scientific institution or scientists to work with the CAEI on the implementation of a broad-based, multi-locational, four-year plot trial program to develop fertilizer response curves for the three most economically important crop types in each of the three project counties. A senior scientist will plan and

oversee the plot trial program, which will be implemented through the project financed CAEI nitrate management specialists. The trials will test crop responses to a range of nitrogen, phosphorous and potassium fertilizer applications applied individually and in various combinations in a multi-locational randomized plot trial research program over the life of the project.

21. *CGAP Demonstration Program*: This project component will promote the adoption and implementation of environmentally friendly agricultural practices that will reduce agricultural nutrient pollution in arable production. The selected demonstration practices will reduce non-point source nutrient pollution from arable land through reducing nutrient discharge into water bodies. The project will enable the CAEI to implement a broad-based program to promote the adoption and implementation of environmentally friendly agricultural practices that will reduce non-point source nutrient pollution from agriculture through reducing nutrient discharge into water bodies. GEF funds will be used to enable the CAEI to recruit three technical staff, who will be distributed across the three participating counties and trained to implement the manure management program. This will include: (i) technical assistance to farmers receiving nitrate mitigation grants; (ii) nutrient management planning in the project counties to promote optimum use of organic and mineral fertilizers in order to reduce the loss of N and P to the water bodies; and (iii) demonstration of cover crop technology that reduces nutrient loss, protects soil from compaction and erosion, maintains soil organic matter, enhances biodiversity and provides additional fodder and/or green manure will also be promoted on up to 220 ha per annum in each participating county. The project will finance the salary of the three CAEI nitrates management staff as well as training, operating and field demonstration costs. Funding for up to 4 person months of international technical assistance will be available to train and support the PIU and CAEI staff in CGAP field applications.

22. The CAEI will include gross margin budgets for each of the Good Agriculture Practices (GAP) field demonstration activities in its annual work program and budget (AWPB). The Project contribution to the participating GAP field demonstration farmers will be paid as a lump sum in the amount of 70 percent of the agreed gross margin budgets in the CAEI AWPB. The participating farmer will contribute the remaining 30 percent.

23. Nutrient management planning will promote optimum use of organic and mineral fertilisers in order to reduce the loss of N and P to water bodies. This measure will consist of:

- sampling and testing the nutrient status of soils and organic manures;
- calculating the nutrient balances using the appropriate software;
- offering case-to-case recommendations of optimal fertiliser rates;
- promotion of efficient techniques for spreading of organic and mineral fertilisers.

24. Various types of cover crops should be grown to provide soil cover and prevent nutrient losses, notably during winter. If the soil is bare there is a risk of losing nitrogen. Growing crops in the autumn and early winter reduces the amount of nitrate in the soil and consequently the amount that could be lost by leaching. Crops, which could be used as cover crops - alone or in mixtures - include legumes, mustard, grasses, buckwheat, lupines, phacilia etc. Legumes grown as winter and summer crops will add additional nitrogen through biological fixation.

25. *Winter cover crops* should be sown in late summer/autumn in fields that would otherwise be bare over the autumn and winter. The selected crops need to have sufficient cold tolerance to endure the winter temperatures.

26. *Non-winter cover crops* can be sown to fill a niche in crop rotations, to improve the soil and to prepare it for a main crop. These crops also serve as green manure. Green manure involves the soil incorporation of cover crops while green or soon after flowering.

27. *Undersowing (living mulch)* was very well known and widely practised in traditional farming. Unlike cover crops that are incorporated into the soil before planting the main crop, undersown crops co-exist with the main crop during the growing season and continue to grow after the crop is harvested. The most suitable crops for undersowing are cereals, although it can be applied with some other crops.

28. At the beginning of each project year an annual working plan on nutrient management practices on arable fields in each project county will be developed and agreed with the PIU. Software for calculating nutrient balances and fertilizer recommendations calibrated for agriculture production on the Croatian Pannonian plain will be purchased and installed in the local CAEI offices with technical support from a Croatian academic institution. The CAEI will organize training for farmers, farm advisors and other stakeholders to discuss the results of the trials and demonstrations. The project will provide funding for the organization of farmer field days and the preparation of extension materials on environmentally friendly practices. Demonstration farms for testing and demonstrating environmentally friendly practices will be selected according to the following criteria:

- Arable and/or mixed farms with adequate soil conditions for appropriate testing and demonstration;
- A sufficient number of relatively similar farms to expect a significant uptake of the demonstration measures;
- Farms preferably situated in water harvesting zones;
- Farmers who have the capacity to apply and manage selected testing and demonstration measures;
- The level of support and promotion of the demonstration program by the local administration;
- Farms located conveniently for public access and visits.

29. Practices for managing nutrients on arable fields that will be applied under the project are outlined below, including crop rotation and cover crops, grass filter strips, grassed waterways, field windbreaks, wetland restoration and riparian buffers. Detailed proposals for CGAP measures under the APCP are contained in the project preparation reports.

30. Riparian buffers are strips of grass, trees or shrubs established adjoining streams, ditches, wetlands and other water bodies. Riparian buffer strips enable the filtration of nutrients and the catching and trapping of contaminants in surface runoff from both surface and ground water before reaching a stream.

31. Crop rotation is the practice of alternating different crops in a field in planned cycles in order to regulate nitrogen levels, prevent soil erosion, reduce fertilizer needs and improve the overall long-term productivity of the land. The use of legumes in crop rotation can provide a substantial amount of nitrogen to a succeeding crop.

32. Cover crops are crops grown to provide soil cover. This technique prevents nutrient losses, protects soil from compaction and erosion, maintains soil organic matter, widens/enriches crop rotation, enhances biodiversity and provides additional fodder and/or green manure.

33. Organic farming avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. Organic farming systems rely on crop rotation, crop residues, animal manures and mechanical utilization to maintain soil productivity, to supply plant nutrients and to control weeds, insects and other pests.

34. *Soil Testing Program*. The project will benefit from the soil testing services provided by the participating counties. The soil testing program will provide nutrient recommendations for participating farmers for most commercial crops, based on scientific research conducted in the same area, with similar soil types, climate and growing conditions. On CGAP demonstration and applied research sites the project will provide comprehensive routine fertility tests comprises soil pH, organic matter, plant available nutrients (N, P, K, Mg, Ca, essential microelements), and if, pH indicates that soil is acid, a lime requirement.

35. *Well Testing Program.* In Varaždinska county 14 percent of all inhabitants rely on their own private wells for drinking water, in Vukovarsko-Srijemska County 17 percent and in Osiječko-Baranjska County the number is as much as 26 percent. There is growing evidence that these wells are heavily polluted by nitrates. To increase the awareness of the impact of nitrates in drinking water on human health and links between water pollution and the quality of groundwater the project will implement a water quality monitoring program for farmers' wells. The private wells testing program envisages testing of about 6 percent of all private wells in the three pilot counties during the course of four years.

Component 3: Public Awareness and Replication Strategy (Total Cost: US$0.74 million, of which GEF US$0.24 million and Associated IBRD financing US$0.50 million)

36. *Nitrates management Information Campaign*: The CAEI will implement a project county and nationwide public information campaign to disseminate the benefits of proposed project activities with a view to their replication under future IPARD support. In particular, the component will promote implementation of good agricultural practices, such as composting, conservation tillage, crop rotation, etc. and improved rural sanitation in the project counties. The project will provide for the organization of national and regional workshops, field trips, and study tours where knowledge and skills on effective low-cost environmentally friendly technologies will be shared. The project will also use the media (TV, radio, agricultural and environmental journals) as a vehicle for disseminating the benefits of proposed activities. Project staff would be encouraged to disseminate their experiences in APCP organized forums. At the project county level, the main audience will be the direct stakeholders of the project, including local and county officials, farmers, community groups and NGOs. At the national level the project will concentrate on institutions and groups including government agencies, national

environmental or professional associations, academia, NGOs, etc. and the population at large. The aim will be to familiarize the population with the project and its benefits and thereby raise the interest of potential future clients.

37. *Website:* The project will contract the establishment a website linked to those of the MAFWM, CAEI and MEPPPC and dedicated to the management of nitrate pollution from agricultural sources in Croatia. The site will be managed by the CAEI Information Department.

38. *Knowledge Sharing:* Provision is made for government and project staff participation in GEF International Waters Learning Exchange and Resource Network conferences and workshops, the Danube and Black Sea Commission meetings and related nitrates management international experiential training seminars.

Component 4: Project Management (Total Cost: US$0.60 million, of which GEF US$0.10 million and Associated IBRD financing US$0.50 million)

39. The APCP will be managed by the Project Management Unit (PIU) of the Agricultural Acquis Cohesion Project that has been established within the MAFWM Department for Policy, EU and International Relations. The PIU is currently staffed with a Project Manager, Financial Controller, a Procurement Officer and an administration/secretarial support person. The output of the PIU would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions.

Annex 5: Project Costs

CROATIA: Agricultural Pollution Control Project

Project Cost By Component	Local US $million	Foreign US $million	Total US $million
Mitigating Nutrient Loads to Water Bodies	8.48	6.14	14.61
Development and Promotion of Agri-environment Measures	2.11	1.68	3.79
Public Awareness and Replication Strategy	0.40	0.31	0.71
Project Management	0.54	0.05	0.59
Total Baseline Cost	11.52	8.18	19.70
Physical Contingencies	0.10	0.06	0.16
Price Contingencies	0.10	0.03	0.13
Total Project Costs[1]	**11.72**	**8.27**	**19.99**
Interest during construction	0.00	0.00	0.00
Front-end Fee	0.00	0.00	0.00
Total Financing Required	**3.72**	**1.28**	**5.00**

[1]Identifiable taxes and duties are US$1.46 million and the total project cost, net of taxes, is US$18.54 million. Therefore, the share of project cost net of taxes is 92.7%.

Annex 6: Implementation Arrangements

CROATIA: Agricultural Pollution Control Project

1. The APCP will be managed by the Project Management Unit (PIU) of the Agricultural Acquis Cohesion Project that has been established within the MAFWM Department for Policy, EU and International Relations on a cost-shared basis. The PIU is currently staffed with a Project Manager, Financial Controller, a Procurement Officer and an administration/secretarial support person who will also assist with implementation of the GEF-supported activities. The PIU is already accredited for World Bank procurement and financial management procedures and has a successful track record in Bank project implementation. In addition, a GEF-funded livestock/nitrates management technical specialist will be hired over the life of the project.

2. The aim of the PIU would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions. The MAFWM Payment Directorate has been established to disburse all government market and structural payments to farmers and includes an EU accredited SAPARD Payment Agency. Under Component 1, for the provision of grants for sustainable manure management practices by the Payment Directorate's Nitrates Management Fund, GEF would support the appointment of two additional technical staff with responsibility for overseeing management of the Fund, including the disbursement of the GEF sub-grants and monitoring of their implementation. The project, in collaboration with the Payment Directorate will prepare an IPARD-compliant Beneficiary and Public Procurement Guide describing procedures for the application, selection and issuance of grants under the Fund. The two staff will be integrated into the Payment Directorate over the life of the project to provide long term capacity for the management of the IPA Measure 3: *Preparation to Implement Actions Designed to Improve the Environment and the Countryside*.

3. The project will work closely with Croatia Waters and the MAFWM of Water Policy and International Projects to establish systems for monitoring surface and, particularly, groundwater pollution, including the establishment of a network of piezometers that would form part of the national water quality monitoring system.

4. Components 2 and 3 will be implemented by CAEI. It is a publicly-funded institute with responsibility for extension management and delivery in Croatia, which is expected to undergo restructuring in the near future to substantially increase stakeholder participation in its management. The CAEI would be strengthened through the appointment of three nitrates management specialists, one in each participating county, to support farmers in planning their nitrate management programs, including manure storage and the application of the CGAP, including extensive field demonstrations of CGAP technology and crop nutrient monitoring and management. The salaries of the three additional staff would be provided by the project, and as with the Nitrates Management Fund, it is expected that these three staff will be absorbed within the CAEI over the life of the project, forming the basis for nitrates management advisory capacity within the institute. The project will also provide extensive training for CAEI and private extension advisers in the EU Nitrates Directive and the practical aspects of its implementation.

5. To implement Components 2 and 3, the PIU will develop an annual work program with CAEI which will be submitted to the Bank each November for approval and will be finalized and signed with CAEI by December 31 based on recommendations of the Bank. The work program will include such details as: task to be carried out, responsibility for execution of the task, task budget, start date, completion date, outputs, and monitoring indicators to track progress of each task. The PIU will undertake all procurement and financial management related to the implementation of components 2 and 3. Depending upon the scope and cost of the activities to be carried out, the PIU will make milestone-based disbursements to CAEI or pay/reimburse CAEI on the basis of Statement of Expenditures for each task.

6. The Project Steering Committee (PSC), composed of representatives from the MAFWM the Ministries of Finance and Environmental Protection, Physical Planning and Construction, and CAEI will provide overall guidance and advice on project issues.

Annex 7: Financial Management and Disbursement Arrangements

CROATIA: Agricultural Pollution Control Project

1. *Executive Summary*

The project financial management arrangements are based on the existing Agricultural Acquis Cohesion Project and are acceptable to World Bank's financial management requirements. It was agreed at the negotiation that, to strengthen capacity of the project financial management, the implementing agency would complete before project effectiveness the preparation of the project accounting software to include GEF funding and automatically generate IFRs.

The overall financial management risk for the project is substantial before mitigation measures, and with adequate mitigation measures agreed, the financial management residual risk is rated moderate.

In 2006, MAFWM started implementation of the Agricultural Acquis Cohesion Project and the first audit report thereof has been received with some delay, however auditors provided unqualified opinion and the report was acceptable to the Bank.

The country systems are used to extent possible and include the use of the accounting system, internal control procedures of the MAFWM supported with project specific financial management and accounting manual. The aim of the PIU would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions.

2. *Country Issues*

The Croatia Country Financial Accountability Assessment (CFAA) Report (May 2005) concludes that the level of fiduciary risk attached to the primary elements of Croatia's public financial management systems (legal framework; institutional capacity and practices for core financial control processes such as budgeting, treasury and cash management, accounting, financial reporting, internal control, internal audit, external audit, and Parliamentary oversight) is significant. Most of the weaknesses in the public financial management (PFM) system revolve around inefficiencies and weaknesses in the existing financial accounting and management systems. There is also insufficient well trained staff in key public financial management functions, such as financial control, accounting, and auditing. Since the date of the report, Croatia is taking action to improve the public financial management system. For example, all line ministries and extra-budgetary funds have established internal audit units, and the State Audit Office (SAO) has been strengthened to assure its independence in practice.

Corruption has declined in Croatia since 1999, as noted in the recent European Bank for Reconstruction and Development and World Bank study (Business Environment and Enterprise

Performance Survey[7], 2005). The perception of corruption is also lower in Croatia compared to other countries in the region. In 2006, the Parliament approved a new *Anti-Corruption Program 2006-2008,* which would focus on areas where corruption is considered to be most prevalent, such as the judiciary, health services, local government, and public administration. The capacity of the Office for the Prevention of Corruption and Organized Crime has been strengthened and the proposed reforms include: adoption of ethics codes and codes of conduct for the public sector, introduction of conflict of interest legislation, introduction of public procurement and state aid legislation, reforms in public administration and political party financing, and direct election of city mayors and county prefects. Implementation of these reforms will continue and is expected to stay on course as Croatia moves towards being an EU member state. These country level anti-corruption measures and specific project level measures on procurement and financial management will mitigate corruption risks for the project.

In the above mentioned environment, the fiduciary risk of the project is related to the misuse of funds. To manage this risk, the following mitigation measures have been incorporated in the project: (a) the project will establish a tight internal control framework, including appropriate internal oversight over the management of project funds; (b) a significant amount of procurement will be subject to Bank's prior review. Post review of contracts from a procurement standpoint will also be carried out; (c) financial audits will be performed by independent auditors acceptable to the Bank on terms of reference acceptable to the Bank; (d) overall supervision, including review of procurement and financial management activities, will be periodically undertaken by the Bank; and (e) an appropriate complaints handling mechanism will be in place. All complaints from bidders, observers, or other parties will be forwarded to the Government for consideration and follow-up action.

3. *Risk Analysis*

The overall financial management risk for the project is *substantial* before mitigation measures; with adequate mitigation measures agreed, the financial management residual risk is rated *moderate*. The table below summarizes the financial management assessment and risk ratings of this project:

Risk Elements	***FM Risk***	***Risk Mitigating Measures***	***FM Residual Risk***
INHERENT RISKS			
Country level. Developed PFM structures (additional information is included in country issues in the next section). Corruption risk mitigated by the project specific measures.	S	Project will maintain financial management system; use of private auditors and use of acceptable commercial bank for Designated Account. Appropriate corruption risk mitigation measures are included (see below).	M
Entity level. Project relies on country systems and agencies. Experienced PIU has coordinating and monitoring role..	M		M

[7] Business Environment and Enterprise Performance Survey (BEEPS) is a joint initiative of the European Bank for Reconstruction and Development and the World Bank. The survey, conducted most recently in 2005, covers 26 former socialist countries and Turkey, as well as five western comparator countries.

Risk Elements	*FM Risk*	*Risk Mitigating Measures*	*FM Residual Risk*
Project level. Project is medium size but includes 4 sources of funding loan, two grants and budgetary funds. Project relies on country systems.	M	Implementation activities will be monitored during Bank regular supervision missions. FM and procurement reviews will be conducted regularly. Project will have financial audit performed by independent auditor.	M
OVERALL INHERENT RISK	M		M
CONTROL RISKS			
Budget.	M	Budget based on procurement plan agreed with the Bank and subject to MAFWM and Parliament approval together with the state budget.	M
Accounting. Application of accounting policies is hindered by unstable accounting system.	S	PIU will complete adjusting of the accounting software.	M
Internal Controls. Adequate controls over the use of funds. FM manual prepared for the existing AACP project needs updating.	M	Project relies on the internal framework existent in MAFWM. FM manual has been updated to include GEF grant funding.	M
Flow of Funds. Simple flow of funds, one implementing agency.	M	Process part of regular FM supervision.	M
Financial Reporting. Reports are produced manually from excel data base which can be a source of human error. The existing accounting system of MAFWM is unstable due to not completed adjustment of the system in PIU.	S	Project will start with traditional disbursement. PIU will complete the adjusting of the existing system to include GEF and automatically generate reports prior to the Board Presentation. Formats of consolidated IFRs, including also GEF funding have been agreed.	M
Auditing	M	Annual project audit performed by independent auditors acceptable to the Bank and review of audit reports by country FMS.	M
OVERALL CONTROL RISK	**S**		**M**
OVERALL FM RISK RATING	**S**		**M**

H – High S – Substantial M – Moderate L – Low

4. *Strengths*

The strengths that provide a basis of reliance on the project financial management system include the current experience of MAFWM PIU in implementing AACP and fact that PIU is functional and ready to implement the new project with similar objectives.

5. *Weaknesses and Action Plan*

The specific weakness identified during the supervision of the AACP relates to not fully completed agenda to strengthen the some areas of financial management arrangements including:

customization of the computer software. The implementation of the new project would require update of the accounting and reporting system (by adding another source of funding into the existing project accounting and reporting in order to maintain separate project records and generate reports).

It was agreed at the negotiation that, to strengthen capacity of the project financial management, the implementing agency would complete before project effectiveness the preparation of the project accounting software to include GEF funding and automatically generate IFRs.

6. *Implementing Entities*

The Project will be managed by the Project Implementation Unit (PIU) of the Agricultural Acquis Cohesion Project that has been established within the MAFWM Department for Policy, EU and International Relations. The aim of the PIU would be to mainstream project implementation functions within the MAFWM by gradually transferring component management to responsible MAFWM departments and institutions.

The MAFWM Payment Directorate has been established to disburse all government market and structural payments to farmers and includes an EU accredited SAPARD Payment Agency. Under Component 1, for the provision of grants for sustainable manure management practices through the Payment Directorate's Nitrates Management Investment Fund, the project would support the appointment of two additional technical staff with responsibility for overseeing management of the fund, including the disbursement of the GEF sub-grants and monitoring of their implementation. The project, in collaboration with the Payment Directorate will prepare an IPARD-compliant Beneficiary and Public Procurement Guide describing procedures for the application, selection and issuance of grants under the Fund.

CAEI will be responsible for technical implementation of Components 2 and 3. It is a publicly funded institute with responsibility for extension management and delivery in Croatia, which is expected to undergo restructuring in the near future to substantially increase stakeholder participation in its management. The CAEI through its nitrates management specialist, one in each participating county, will support farmers in planning their nitrate management programs, including manure storage and the application of the CGAP, including extensive field demonstrations of CGAP technology and crop nutrient monitoring and management.

7. *Staffing*

The project will utilize the existing staff in PIU and other implementing entities. The PIU is currently staffed with a Project Manager, a Financial Controller, a Procurement Officer and an administration/secretarial support person who will assist with implementation of the GEF-supported activities. The PIU financial staff has sufficient experience in ongoing AACP project.

The associated risk with staffing is moderate.

8. *Budgeting and Planning*

The budget for the project, including loan and grant funds and counterpart funding is prepared within the state budget prepared and approved by the Parliament on annual basis. The project budget is prepared in accordance with the State Budget Act and is integrated in the Ministry of Agriculture budget. The budget is made public in the Official Gazette after Parliament approval, normally in January of the budget year.

The risk associated with planning and budgeting is assessed as moderate.

9. *Information Systems*

The MAFWM uses SQL based accounting software (KONTOORGAN) that was implemented in April 2005. For the ongoing AACP all accounting records were supposed to be kept in the KONTO software. However, PIU has only a local data base, which is not yet integrated with the main software in the MAFWM and it is still under the testing phase due to problems with the connection to the MAFWM server and accounting software. Therefore, PIU inputs the project data in parallel into the local KONTO replica and into an excel spreadsheet. Currently the Financial Management Reports are prepared on the basis of excel as there are still discrepancies between excel and KONTO reports. PIU together with system vendor is in the process of verification of the reasons for discrepancies. Taking into account the fact that project will use the traditional disbursement (at least at the beginning of the project) it was agreed during the negotiations that the KONTOORGAN software will be adjusted to produce automatic IFRs for World Bank reporting purposes by the end of 2007.

The risk associated with information systems is substantial before mitigation measures due to uncompleted computerized project accounting software and possibility of human error using excel data base. After mitigation measures, it is rated moderate.

10. *Accounting Policies and Procedures*

Accounting is done on a cash basis in accordance with the Accounting Law with the modifications applicable to the budget funded organizations.

The project's financial statements will be prepared on a cash basis - invoices will be recognized when received and registered in a document evidence module in the accounting system, but expenditures will be recorded only after payment. The reports will be prepared in the borrower's currency, in Kuna and there will have to be a monthly reconciliation between project financial statements in Kuna and data used for Interim Un-audited Financial Statements (ex IFRs). The DA statement and the project Balance sheet will be prepared in both currencies (Kuna and Euro).

Additional accounting policies to be applied on the project will include the following major assumptions: cash accounting as the basis for recording transactions; reporting in Kuna (Borrower currency); consolidated IFRs to be prepared for all components of the project; and counterpart funds will be reflected in the financial reports.

The PIU has documented the project's financial management arrangements in the Operational Manual developed under the AACP project. These describe project-specific procedures, flow of funds, accounting policy, periodic control procedures, the agreed formats of the project's IFRs with the deadline for their preparation, and the project' auditing arrangements. For the proposed GEF project, the Operational Manual was updated in line with the negotiated legal agreements. An updated financial management chapter, to include GEF financing as part of the Operational Manual, was ready before Board presentation.

The risk associated with accounting policies and procedures is substantial before mitigation measures due to the unstable accounting software as indicated in paragraph on information system. After mitigation measures, it is rated moderate.

11. ***Internal Controls and Internal Audit***

The MAFWM has an appropriate set of procedures and internal controls, including authorization and segregation of duties over the use of the Treasury Ledger System and the Ministry's own accounting system.

Project Implementation Unit will operate within the existing internal control framework as per the applicable Croatian legislation and will build upon its existing accounting policies, procedures and internal controls. The contracts to be financed from the project sources will be included in the procurement plan to be approved by the World Bank. The implementing agencies will apply procurement procedures as agreed with the World Bank. The payments will be processed only when approved by the Assistant Minister of MAFWM, following verification that invoices were issued in accordance with the contract and accompanied by an appropriate certified completion certificate by the assigned authorized person or other goods received note or acknowledgement of receipt of the goods or services.

The PIU would monitor and coordinate, *inter alia*, the flow of funds, maintain project accounting, manage cash flow liquidity of the project and preparation of the reports and records for documentation of the expenditures to the World Bank.

Internal audit is a relatively new function within the Croatian financial management framework. The 2003 Budget Act required all ministries to establish an internal audit function reporting directly to the responsible Minister. Accordingly, the MAFWM has appointed staff to the internal audit function that is currently being trained by the Ministry of Finance. Given the formative stage of this function, no reliance will be placed on this unit. Consideration will be given during the project implementation of the reliance that may be placed on this unit as well as if and how this unit may be strengthened.

The risk associated with the internal control and internal audit is moderate.

12. *Reporting and Monitoring*

Project management-oriented Interim Unaudited Financial Reports (IFRs) will be used for project monitoring and supervision and the indicative formats of these have already been discussed and agreed with the Bank.

The PIU will prepare consolidated Interim Unaudited Financial Reports (IFRs) for the entire project, including all sources of funding (AACP loan, GEF grant and counterpart financing) and all expenditures incurred on a semi-annual basis within 45 days as well as annual Project Financial Statements. The format of IFRs has been agreed upon and was attached to the minutes of the negotiations.

The basic IFRs required every six months will include:

- Sources and uses of funds by project categories
- Use of funds by project components
- Designated Account Statement

In case IFRs would be used for disbursement, IFRs will need to additionally include:

- Cash forecast for the next six months by project categories in currency of the grant
- Summary statement of expenditures by categories and in currency of the grant
- Designated Account reconciliation and a copy of the bank statement

The risk associated with reporting and monitoring is assessed as substantial before mitigation measures due to the unfinished computer facility to generate the IFRs automatically for the ongoing project and possibility of human error using excel spreadsheets. After mitigation measures, it is rated moderate.

13. *External Audit*

The latest Croatia CFAA (May 2005) draws attention to a number of weaknesses in the operation of the State Audit Office (SAO). The CFAA specifically notes that, "[the SAO's] audit opinions do not constitute positive statements of assurance concerning the true and fair nature of the financial statements". However, the SAO is seeking to improve its capacity and the Bank will continue to monitor the progress of the SAO and may at some future time, subject to agreeing adequate terms of reference, seek to place reliance upon its audit work.

There is the statutory requirement for SAO to audit annually the Tax Administration. As Tax Administration is a Government entity, an entity audit will not be required. CTA will share with the Bank the SAO audit reports when available.

The audit of the project will be conducted by independent private auditors acceptable to the Bank, on terms of reference acceptable to the Bank, and procured by the implementing agency. The annual audited project financial statements will be submitted to the Bank within six months

of the end of each fiscal year and also at the closing of the project. The cost of the audit will be financed from the proceeds of the loan.

The following chart identifies the audit reports that will be required to be submitted by the project implementation agency together with the due date for submission.

Audit Report	*Due Date*
Project financial statements (PFS), including SOEs and Designated Account. The PFSs include sources and uses of funds by category, by components and by financing source; SOE statements, Statement of designated account, notes to financial statements, and reconciliation statement.	Within six months of the end of each fiscal year and also at the closing of the project

The risk associated with external audit is considered moderate.

14. *Funds Flow and Disbursement Arrangements*

There will be a separate Designated Account for the grant. The Designated Account will be opened by MAFWM in a commercial bank acceptable to the World Bank. Loan funds will flow from the World Bank to the Designated Account and then from Designated Account to contractors on the basis of the approved invoices. For the parts 2 and 3 CAEI will incur the expenditures in accordance with the agreed Annual Work Program and Budget and pay for the expenditures from an assigned budget line. Thereafter the MAFWM on the basis of the documents received from CAEI (contracts, invoices, payments evidence) will make reimbursement for these expenditures from designated account to the state treasury budget account. There will be also possibility to use special commitments (in case of goods imported) or direct payments methods from World Bank to contractors for larger payments as indicated in the Disbursement Letter.

Project will use traditional disbursement methods at the beginning of the project as described in the Disbursement Letter. During the life of the project, if PIU develops cash flow forecast and reporting capabilities, they can move to report based disbursements. In case of moving into the report based disbursement the withdrawal application for the advance will be supported by the cash forecast report and Designated Account reconciliation including a copy of the bank statement. The reconciliation (recovery process) of expenditures will be carried on semiannual basis in line with IFRs, therefore each IFRs should be sent to the disbursement department together with the Withdrawal Application. The recovery withdrawal applications will be supported by full IFRs including in particular Summary Statement of Expenditures (part of IFRs) showing types of expenditures with applied disbursement percentages and expressed in USD, and Designated Account statement including copy of the Bank Statement. The details of the report based disbursement will be confirmed in the new Disbursement Letter issued prior to moving to new disbursement method.

Full documentation in respect of project expenditures will be kept by PIU and verified by auditors on an annual basis.

The risk associated with flow of funds and disbursement is assessed as moderate.

Allocation of Grant Proceeds and Financing Percentage

Category	Amount of the Grant Allocated (expressed in USD)	Percentage of Expenditures to be Financed
(1) Sub-Grants	2,660,000	75%
(2) Goods, services (other than consultants' services) and consultants' services and training under Parts 1, 2.A, 2.B, 2.C (i) and (ii), 3 and 4 of the Project	2,060,000	100%
(3) Goods, services (other than consultants' services) and consultants' services and training under Part 2.C (iii) of the Project	190,000	70%
(4) Recurrent Costs	90,000	100%
TOTAL AMOUNT	5,000,000	

Under "Recurrent Costs", the Grant will finance expenditures to finance the cost of operation and maintenance of equipment, travel allowances of the staff of the Payment Directorate, the PIU and CAEI under all Parts of the Project, bank charges, as well as the mileage allowances and operation and maintenance of vehicles under Parts 2 and 3 of the Project.

15. *Supervision Plan*

As part of its project supervision missions, the Bank will conduct risk-based financial management supervisions, at appropriate intervals. During project implementation, the Bank will supervise the project's financial management arrangements in the following ways: (a) review the project's semi-annual financial management reports as well as the project's annual audited financial statements and auditor's management letter and remedial actions recommended in the auditor's Management Letters; and (b) during the Bank's on-site supervision missions, review the following key areas (i) project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) disbursement management and financial flows, including counterpart funds, as applicable; and (iv) any incidences of corrupt practices involving project

resources. As required, a Bank-accredited Financial Management Specialist will assist in the supervision process.

The first supervision is planned to verify that effectiveness condition is met.

Annex 8: Procurement Arrangements

CROATIA: Agricultural Pollution Control Project

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, revised October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, revised October 2006 and the provisions stipulated in the Grant Agreement. The general description of various items under different expenditure categories are detailed below. For each contract to be financed by the GEF Grant, the different procurement methods or consultant selection methods, estimated costs, prior review requirements, and time frame are agreed between the Recipient and the Bank project team 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.

The Recipient, through the Project Implementation Unit (PIU) of the MAFWM, will follow the World Bank's anti-corruption measures and will not engage services of firms and individuals debarred by the Bank. The list of such debarred firms and individuals is located at http://www.worldbank.otg/html/opr/procure/debarr.html

Advertising: A General Procurement Notice (GPN) listing all main procurement packages shall be issued on-line in UNDB, dgMarket, the national gazette *Narodne novine* and on the web-site of MAFWM. Specific Procurement Notices (SPN) for International Competitive Bidding (ICB) for goods and for consultant services contracts estimated to cost US$ 200,000 and above will be advertised on-line in UNDB, dgMarket, the national gazette Narodne novine and on the MAFWM web-site. SPN for National Competitive Bidding (NCB) for goods and for consultant services contracts estimated to cost below US$200,000 will be published in *Narodne Novine* and on MAFWM web-site. The results of contract awards for goods and consultant services will be posted on UNDB on-line and dgMarket as required under the Guidelines, and on the MAFWM website.

Procurement of Works: It is not envisaged that the Grant will finance works contracts, except under the grants for manure storage and for manure pumping. Works to be financed under the sub-grants will be procured in accordance with commercial practices described in the Beneficiary and Public Procurement Guide approved by the Bank.

Procurement of Goods: Goods procured under this project would include: field equipment, office furniture and equipment, laboratory equipment, etc.

- ICB procedure will be followed for contracts estimated to cost US$1,000,000 million and above. The Bank's SBD for Procurement of Goods will be used and these documents are available on the Bank's website (www.worldbank.org).

▪ For the purposes of following National Competitive Bidding procedures for goods and services (other than consultants' services) estimated to cost less than USD 1,000,000 per contract to be financed under the Grant, the following modifications and additions shall apply:

(i) Procedures: The public bidding method shall apply to all contracts. Invitations to bid shall be advertised in the Borrower's Official Gazette (*Narodne Novine*) and in at least one widely circulated national daily newspaper or at the MAFWM's website, allowing a minimum of thirty (30) days for the preparation and submission of bids.

(ii) Assessment of Bidders Qualifications: When pre-qualification shall be required for large or complex works contracts, invitations to pre-qualify for bidding shall be advertised in the Borrower's Official Gazette (*Narodne Novine*) and at least one widely circulated national daily newspaper or at the MAFWM's website for a minimum of thirty (30) days prior to the deadline for the submission of pre-qualification applications. Minimum experience, technical and financial requirements shall be explicitly stated in the pre-qualification documents, which shall be determined by a "pass/fail" method, not through the use of a merit point system. Where pre-qualification is not used, the qualifications of the bidder who is recommended for award of contract shall be assessed by post-qualification, applying minimum experience, technical and financial requirements, which shall be explicitly stated in the bidding documents.

(iii) Participation of Government-owned Enterprises: Government-owned enterprises located and operating on the Borrower's territory shall be eligible to participate in bidding only if they can establish, to the Bank's satisfaction, that they are legally and financially autonomous, operate under commercial laws and are not a dependent agency of the Borrower's Government. Said enterprises shall be subject to the same bid and performance security requirements as other bidders.

(iv) Bidding Documents: Project Implementing Unit acting as procuring entity shall use the appropriate standard bidding documents for the procurement of goods, works or services, as defined in the paragraph 1.1 of the Guidelines, which shall contain draft contract and conditions of contract acceptable to the Bank.

(v) Bid Submission, Opening and Evaluation

(1) Bids shall be submitted in a single envelope containing the bidder's qualification information, technical and price bids, which shall be opened simultaneously at the public bid opening.

(2) Bids shall be opened in public, immediately after the deadline for submission of bids. The name of the bidder, the total amount of each bid and any discounts offered shall be read aloud and recorded in the minutes of the public bid opening.

(3) The evaluation of bids shall be done in strict adherence to the monetarily quantifiable criteria specified in the bidding documents and a merit point system shall not be used.

(4) Extension of bid validity shall be allowed once only for not more than thirty (30) days. No further extensions should be granted without the prior approval of the Bank.

(5) Contracts shall be awarded to qualified bidders having submitted the lowest evaluated substantially responsive bid.

(6) No preference shall apply under National Competitive Bidding.

(vi) Price Adjustment: Civil works contracts of long duration (e.g., more than eighteen (18) months) shall contain an appropriate price adjustment clause.

(vii) Rejection of All Bids

(1) All bids shall not be rejected and new bids solicited without the Bank's prior written concurrence.

(2) When the number of bids received is less than two, re-bidding shall not be carried out without the Bank's prior concurrence.

(viii) Securities: Bid securities should not exceed 2% (two percent) of the estimated cost of the contract; and performance securities -- not more than 10% (ten percent). No advance payments shall be made to contractors without a suitable advance payment security. The wording of all such securities shall be included into the bidding documents and shall be acceptable to the Bank.

- **Shopping** procedure will be used for goods and standard computer software and hardware, networks and database, estimated to cost less than US$100,000. Procurement will be carried out on the basis of comparing written quotations obtained from at least three qualified suppliers and the Bank's sample format for Invitation to Quote will be used or the national document agreed with and satisfactory to the Bank.

- Procurement in Loans to Financial Intermediaries will be applicable to the procurement of goods, works and services (other than consultants' services) under Sub-projects, as further elaborated in the Beneficiary and Public Procurement Guide.

Selection of Consultants: The consultant services under the project will include contracts for firms and individuals for various advisory services in the area of nitrates policy, agricultural practices, M&E and social surveys, assessments, surveys, project audit, etc. For consultant services estimated to cost less than US$200,000, the short list of consultants may comprise only national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. The following consultant procedures may be applicable for the project: Quality and Cost Based Selection (QCBS); Quality Based Selection (QBS), Fixed Budget Selection (FBS), Consultant Qualification (CQ); Least Cost Selection (LCS); Single Source Selection (SSS), and Individual Consultants (IC). Commercial Practices will be followed to the procurement of consultants' services under Sub-projects, as further elaborated in the Beneficiary and Public Procurement Guide.

The institutions, for training, conducting seminars, and for study tours, will be selected on the basis of analysis of the most suitable program of training offered by the institutions, availability of services, period of training and reasonableness of cost. Individual consultants will be contracted in accordance with IC procedures and based on comparison of CVs to deliver the staff training under the project.

Operational Costs: Costs for field allowances and equipment operation and maintenance will be paid out of the operating costs category of the project.

Others: The arrangements and procedures for the application, selection and issuance of grants under Component 1(a) will be described in the IPARD-compliant Beneficiary and Public Procurement Guide approved by the Bank.

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

Procurement activities financed from the GEF Grant will be carried out by the same Project Implementation Unit (PIU) of the Agricultural Acquis Cohesion Project (AACP) that has been established within the MAFWM Department for Policy, EU and International Relations. The PIU is currently staffed with a Project Manage Financial Specialist, Procurement Officer and an administrative/secretarial support person who will also assist with implementation of the GEF-supported activities. The PIU will carry out the procurement of the goods and services that will be used by CAEI.

Over the last almost two years, the PIU has already gained substantial experience in managing the procurement activities under the PPF and the AACP, and it has adequate capacity to manage the procurement activities under the GEF. All staff has a sound knowledge in English, good educational background in their subject area. The Procurement Officer has attended the one week regional procurement training course organized by the Bank in Bucharest, Romania at the end of May 2007. In addition, she receives on-the-job training on a daily basis from the Procurement Adviser hired to help the PIU with the procurement activities under the AACP.

The team believes that there are no major issues and risks concerning the procurement component for implementation of the project. In order to enhance and maintain her capacity in World Bank procurement, the Procurement Officer should continue working in close cooperation and under the guidance of the Procurement Adviser and should attend regional procurement training courses whenever they are offered in the region. In addition, she can contact on a daily basis the Procurement Officer in Bank office in Zagreb for guidance and advice on different procurement issues.

The overall project risk for procurement is **average.**

C. Procurement Plan

The Recipient, at appraisal, will develop a Procurement Plan for project implementation, which provides the basis for the procurement methods. In the procurement plan, all contracts will be grouped in bid packages as much as feasible to encourage better competition. This plan has been agreed between the Recipient and the Project Team on 25 October 2007 and is available at the office of the PIU. 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 Project Implementation Unit has recommended that the frequency of supervision missions to visit the field to carry out post review of procurement actions at least once a year, but ad-hoc supervision may be carried out by the Bank on an as-needed basis. The PIU will maintain the procurement documents in a timely and orderly manner to facilitate the procurement review. Contracts not subject to Bank's prior review will be post reviewed by the Bank's relevant procurement specialist. At a minimum, 1 out of 5 contracts will be randomly selected for post review.

Attachment 1

I. General.

1. **Project information**: Croatia: GEF Grant Agriculture Pollution Control Project

2. **Bank's approval Date of the Procurement Plan:** 25 October 2007

3**.** **Advertising:** A General Procurement Notice (GPN) listing all main procurement packages shall be issued on-line in UNDB, dgMarket, the national gazette *Narodne novine* and on the web-site of MAFWM. Specific Procurement Notices (SPN) for International Competitive Bidding (ICB) for goods and for consultant services contracts estimated to cost US$ 200,000 and above will be advertised on-line in UNDB, dgMarket, the national gazette Narodne novine and on MAFWM web-site. SPN for National Competitive Bidding (NCB) for goods and for consultant services contracts estimated to cost below US$ 200,000 will be published in *Narodne Novine* and on MAFWM web-site. The results of contract awards for goods and consultant services will be posted on UNDB on-line and dgMarket as required under the Guidelines, and on MAFWM website.

4. **Date of General Procurement Notice**: Any date after negotiations

5**.** **Period covered by this procurement plan**: Life of the project

II. Goods and Works and non-consulting services.

6. **Procurement of Works:** It is not envisaged that the Grant will finance works contracts, except under the grants for manure storage and for manure pumping and transportation. The procurement procedures for contracts financed from the above grants will be elaborated in an Operations Manual acceptable to the Bank.

7. **Procurement of Goods:** Goods procured under this project would include: field equipment, office furniture and equipment, laboratory equipment, etc.

7.1 **International Competitive Bidding (ICB)** procedure will be followed for contracts estimated to cost US$ 1,000,000 and above. The Bank's SBD for Procurement of Goods will be used and these documents are available on the Bank's website (www.worldbank.org).

7.2 **National Competitive Bidding (NCB)** procedure will be followed for contracts estimated to cost less than $ 1,000,000. The Bank's sample NCB documents or the national bidding documents, satisfactory to the Bank, will be used, subject to the provisions set forth in the Annex to the Grant Agreement.

8. **Shopping** procedure will be used for goods and standard computer software and hardware, networks and database, estimated to cost less than US$ 100,000. Procurement will be carried out on the basis of comparing written quotations obtained from at least three qualified suppliers and the

Bank's sample format for Invitation to Quote will be used or the national document agreed with and satisfactory to the Bank.

9. **Prior Review Threshold**: Procurement Decisions subject to Prior Review by the Bank as stated in Appendix 1 to the Guidelines for Procurement:

	Procurement Method	Prior Review Threshold	Comments
1.	ICB and DC (Goods)	All	
2.	NCB (Goods)	First two irrespective of value and all above US$ 0.5 million	
3.	ICB (Non-Consultant/Technical Services)	First two and all above USD 0.1 million	

10. **Reference to (if any) Project Operational/Procurement Manual:** The arrangements and procedures for the application, selection and issuance of sub-grants under Component 1(a) are described in the IPARD-Compliant Beneficiary and Public Procurement Guide agreed with the Bank at negotiations

11. Procurement Packages with Methods and Time Schedule are in the table attached at the end of this procurement plan**.**

III. Selection of Consultants

12. **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)	All above US$ 0.1 million	
2.	Single Source (Firms)	All	
3.	Individual Consultants	All above US$ 0.05 million	
4.	Single Source and Sole Source Selection	All	

13. **Short list comprising entirely of national consultants**: Short list of consultants for services, estimated to cost less than US$200,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

14. **Training:** The institutions, for training, conducting seminars, and for study tours, will be selected on the basis of analysis of the most suitable program of training offered by the institutions, availability of services, period of training and reasonableness of cost. Individual consultants will be contracted in accordance with IC procedures and based on comparison of CVs to deliver the staff training under the project.

15. Consultancy Assignments with Selection Methods and Time Schedule are in the table attached at the end of this procurement plan.

The Procurement Plan has been agreed between the Borrower and the Project Team on October 25, 2007 and is available at the office of the PIU. 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.

Procurement Plan for the Croatia Agriculture Pollution Control Project (APCP)

Ref. No.	Contract (description)			Estimated Contract Value	Number of Contracts	Procurement /Selection method	Review by Bank (prior/ post)	Plan Vs Actual	Expected Bid Opening	Expected Contract Signing	Expected Contract Completion	Comments
	Goods											
a.	***Equipment, Materials and Supplies***											
1	Field Equipment	Goods			2	NCB	Prior	Plan	May-08			
								Actual				
2	Office Furniture	Goods			1	Shopping	Post	Plan	Jan-08			
								Actual				
3	Office Equipment	Goods			1	Shopping	Post	Plan	Jan-08			
								Actual				
4	Computer equipment and networks	Goods			1	Shopping	Post	Plan	Jan-08			
								Actual				
5	Computer software and databases	Goods			1	Shopping	Post	Plan	Jan-08			
								Actual				
6	Laboratory equipment	Goods			1	NCB	Prior	Plan	Jan-08			
								Actual				
7	Extension Equipment	Goods			1	Shopping	Post	Plan	Jan-08			
								Actual				
	Total goods											
	Sub-project Funds											All grant payments subject to manuals satisfactory to the Bank
1	Grants for Manure Storage	Grants	85%		Multiple	CP	Prior (first 3 contracts)	Plan	Through life of the project			
								Actual				
2	Grants for manure pumping	Grants	15%		Multiple	CP	Prior (first 3 contracts)	Plan	Through life of the project			
								Actual				
	Total Sub-project Funds	-	-									

	Consulting Services								**Expected CV Evaluation**			
	International Technical Assistance											
1	Nitrates Policy Advisor	CS			1	IC	Prior (ToR)	Plan	Feb-08	Feb-08		
								Actual				
2	Good Agricultural Practice Advisor	CS			1	IC	Prior	Plan	Feb-08	Feb-08		
								Actual				
3	Nitrates Monitoring Adviser	CS			1	IC	Prior	Plan	May-08	May-08		
								Actual				
	Total International Technical Assistance											
	National Technical Assistance											
	A. National Consulting Services											
2	Livestock/Nitrates Management Technical Advisor	CS				IC	Prior	Plan	Oct-07	Oct-07		
								Actual				
3	MAFWM Payment Directorate staffing	CS				IC	Prior	Plan	Jan-08	Jan-08		
								Actual				
4	CAEI Nitrrates Management Field Advisors	CS				IC	Prior	Plan	Jan-08	Jan-08		
								Actual				
4	Project M&E and Social Surveys	CS				IC	Prior (ToR)	Plan	Feb-08	Feb-08		
								Actual				
4	Project Audit	CS				IC	Post	Plan	Feb-09	Feb-09		
								Actual				

	Total National Technical Assistance											
	Total Technical Assistance											
	Non Consulting Services											
1	Information & Communication package	NCS			1	NCB	Prior	Plan	May 08	Jul-08		
								Actual				
2	CGAP Field Demonstration	NCS			Multiple	Shopping	Post	Plan	Through life of the project			
								Actual				
3	Farm well water testing	NCS			1	NCB	Prior	Plan	May-08			
								Actual				
	Total Non Consulting Services											
	Studies & Field Demonstrations											
1	Laboratory Quality Control Study	CS			Single	CQ	Prior (ToR)	Plan	Mar-08			
								Actual				
2	Crop/Fertilizer Response Study	CS			1	CQ/SSS	Prior	Plan	Feb-08			
								Actual				
5	Soil Testing	CS			1	NBF		Plan	Through life of the project			
								Actual				
	Total Studies											
	Training											
1	Laboratory Staff Training	Training			1	Training	Prior	Plan	Jun-08			
								Actual				
1	CGAP Working Group Study Tour	Training			1	Training	Prior	Plan	Jun-08			
								Actual				
2	Nitrates Management Advisors Study Tour	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
3	Nitrate Management Advisor Training	Training			1	Training	Prior	Plan	Through life of the project			
								Actual				
4	CAEI Training of Trainers Program	Training			Multiple	Training	Prior	Plan	Through life of the project			

								Actual				
5	Public and Private Extension Staff Training	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
6	County Administration Capacity Building	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
7	GEF International Waters Annual Conference	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
7	Danube and Black Sea Commission Meetings	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
7	Farmer Field Days	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
7	Management Staff Training	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
7	Payment Directorate Staff Training	Training			Multiple	Training	Prior	Plan	Through life of the project			
								Actual				
	Total Training											
	Operating Costs											
1	Field allowances	Operating				Other	Post	Plan	Through life of the project			
								Actual				
3	Equipment operation and maintenance	Operating				Other	Post	Plan	Through life of the project			
								Actual				
	Total Operating costs											
	Grand Total			**$6,088,973**								

Annex 9: Economic and Financial Analysis

CROATIA: Agricultural Pollution Control Project

Financial and Economic Analysis

1. The average cost for constructing an above-ground manure storage facility is about 1,350 EUR per LU. Assuming a usage period of 30 years, the average annual depreciation cost is 45 EUR per LU. With an opportunity cost of capital of 6 percent per year, the annual opportunity cost would be EUR 81 per LU, giving an annual financial cost of around 126 EUR per LU.

2. Under Croatian conditions (feeding regime, housing, etc.) one LU annually excretes about 85 kg of nitrogen, of which about 35 percent of this N is lost into soil/water due to improper manure storage. The value of 1 kg of nitrogen as fertilisers is about EUR 0.51. Assuming 30 kg of preventable nitrogen loss, the annual benefit would be about 15 EUR. The replacement of (lost) nutrients from manure by fertilisers also bears external costs. In the case of Croatia the environmental costs of nitrogen fertiliser production, transport and associated public investments are estimated at EUR 0.37/kg/N. In addition, nitrogen concentration in water exceeding the MAC is estimated to have a shadow price of EUR 1.0 per kilogram of excess nitrogen. Assuming that about 50 percent of 30 kg of lost nitrogen under present management conditions contributes to N levels above the MAC, this eternal cost, together with the externalities associated with N production and distribution would results in saved external costs of 26 EUR per year..

3. Similarly to nitrogen, the prevention of P_2O_5 loss into water also bears an economic value both for the farmer and for society. An average LU in Croatia annually excretes about 47 kg P_2O_5. Assuming a loss of 35 percent due to improper manure storage, there is a loss of 16.5 kg P_2O_5 per year, which, if purchased as fertilized at an average price of EUR 0.51 per kg of P_2O_5 would cost EUR 15.2/LU/year. With estimated externalities for production and distribution of 0.11 EUR per kg of P_2O_5 and an external cost of 15 EUR for each kg of P_2O_5 causing P_2O_5 concentration in water above the MAC, the annual value of the prevented externalities is 125 EUR per LU per year.

4. The average annual excretion of K_2O per LU in Croatia is 63 kg. With an average estimated loss of 35 percent from the manure heaps, the annual K_2O load into soil/water per LU is 22 kg. To recover this, farmers would have to invest 11 EUR in K_2O fertilisers. Assuming that 50 percent of the lost K_2O would raise K_2O concentration in water above the MAC with an external cost of 8.2 EUR per kg K_2O and an additional external cost of 0.11 EUR for each kg of produced and distributed K_2O, the total value of K_2O generated external costs are EUR 93 per LU per year.

5. By investing in this impervious manure storage systems, farmers would incur an annual charge of EUR 126/annum, while generating a benefit of about EUR 35/LU/year (EUR 15 for N, EUR 8 for P_2O_5 and EUR 11 for K_2O). From the farmer's perspective, therefore, it is more cost effective to buy these nutrients as fertiliser then through investment in a manure heap. A 75 percent subsidy from Government for manure storage construction, however, makes manure storage cost neutral for the farmer. From the societal perspective, however, the value of the associated environmental damage and public investments is about EUR 244/LU/year, which is double the annual cost of the proposed measure and fully justifies public investment in manure

storage. It will be critical to communicate to farmers that the requirements laid down in the EU Nitrates and other Directives protecting water bodies from an excessive load of nutrients contain much more than a simple analysis on nutrient costs.

6. The average cost for establishing green manure / undersowing is estimated at EUR 130/ha. Besides preventing nutrient losses, these measures have several other environmental and agronomic benefits, including improved soil structure, increased soil microbiological activity, etc., all generating yield benefits for subsequent crops estimated at EUR 65/ha or 50 percent of establishment cost. The average Croatian nitrogen loss to water in the period 2001-2003 derived from farming is estimated at 71 kg nutrients per ha of arable land. Assuming the same leaching level in the three pilot regions and that the proposed N-reduction measures on arable land would prevent 60 percent of N leaching, this would result in a reduction of 43 kg nutrients per ha (37 kg /N/ha and 6kg /K_2O/ha). Using the same price for these nutrients as for manure storage, the financial value to farmers of the prevented nutrient loss is EUR 22/ha, however, the value of the accompanying external costs is EUR 55/ha. Since the cost of the measure for the farmer is about three times higher than the benefit (EUR 65/ha vs. EUR 22/ha = EUR 43/ha) an argument exists for farmers to receive an agri-environment subsidy of about EUR 43/ha, which is nearly the same as the value of the external cost for society (EUR 55/ha).

Annex 10: Safeguard Policy Issues

CROATIA: Agricultural Pollution Control Project

1. The project has been designed to demonstrate a series of positive impacts on the environment, especially related to reduction of nitrogen loads into the surface waters and groundwater, which will help prevent deterioration of Pannonian plain water resources and ecosystems. Furthermore, the potential public health hazards from high nitrate concentrations in the ground waters used for drinking in local water supply systems and contamination of surface waters used for bathing, fishing and other recreational purposes, will be reduced. The project will finance activities aiming to significantly increase the use of environmentally friendly agricultural practices by farmers in Varazdin, Vukovar – Sirmium and Osijek – Baranja counties in order to reduce nutrient discharge from agricultural sources. These activities represent the good agricultural practices as mandated by the EU Nitrate Directive. The project will be implemented through four components: Mitigating Measures for Reducing Nutrient Loads to Water Bodies, Implementation of National Agri-environment Policy, Public Awareness and Replication Strategy, and Project Management.

Environmental Categories

2. The Project has been classified as a category B environment project because the anticipated environmental issues are not significant in scope and scale and can be effectively managed through adequate up-front planning through the development of an Environmental Management Plan. The EMP has taken into consideration all existing Croatian legislation and has highlighted some areas for monitoring where legislation is likely to be revised during the project period.

Potential Environmental Issues

3. An environmental management plan (EMP) was prepared for the project, which screened possible grant-financed investments where environmental issues can be identified up-front in the design, construction and operation stages. Physical investments that might impact on the environment are identified in Components 1 (Mitigating Measures for Reducing Nutrient Loads to Water Bodies) and 2 (Implementation of National Agri-environment Policy, Public Awareness and Replication Strategy). These investments are: a) Construction of manure management platform/ waste collection sites, b) Implementation of the Code of Good Agricultural Practices (CGAP), and c) Expansion of groundwater monitoring wells. The mitigation measures and monitoring are identified for construction of manure platforms/ waste collection sites. The CGAP, based on EU good practices; will promote environmentally friendly measures such as tree planting as protection buffers, riparian buffers, erosion control, grazing management and nutrient management plans. Farmers will be educated in CGAP technology and management systems to avoid mismanagement of nitrates in agriculture and livestock production. A network of 27 sets of piezometers[8] will be established on selected farms where manure management platforms will be constructed. These piezometers will become a part of the national network of

[8] Each piezometer set will include 3 piezometer tubes to the depth of 5, 10 and 15 meters respectively.

water monitoring sites, contributing to needed expansion of groundwater monitoring network. These incremental monitoring sites will be managed, sampled and tested by Croatian Waters.

4. The standard construction works associated with the construction of waste platforms include following activities: removal of fertile top-soil, excavation for foundation of the above ground manure storage, concrete lining, excavation for the underground storage tank, etc. Adverse effects that may occur during the construction phase are: dust from excavation processes, exhaust emission and noise & vibrations from construction equipment and vehicles, soil pollution caused by oil and grease leakage and improper waste disposal. The expected impact is related to noise and dust, which will, however, have local short-range character and will be temporary. The mitigation measures envisaged in the EMP will be transferred to the construction company or other entity/person responsible for execution of such works. The measures include, among others, fencing of the construction area, vehicle speed reduction on earthy roads and areas, implementation of measures to reduce surface run-off and erosion on site, limiting works on the regular daily working hours, compliance with construction work regulations, follow the waste management system, maintenance of vehicles and construction equipment on designated surfaces where oil and grease adsorbents are provided.

5. The operation of the facilities will have in general a positive impact on both water and soil quality. No negative effects are foreseen if the structures are maintained properly and used according to standard operating practices. Due to the fact that negative impact could arise from malpractice, training on maintenance of the facilities will be organized for individual farmers participating in the program. Some adverse impact could be felt in close proximity to manure storage structures only due to odor. This impact will be felt particularly during unfavorable climate conditions (high temperatures, high air pressure, no wind). However, selection of the appropriate location for such structures in the design phase would in most cases reduce this impact to the minimum.

Responsibility

6. The Ministry of Agriculture, Forestry, and Water Management as the key beneficiary of the grant, through the Payment Directorate, will take primary responsibility for addressing the environmental aspects of the grants, and ensuring that the Environmental Management Plan is implemented. A person at the PIU unit will be responsible for the “safeguard compliance”. The Plan has taken into account local Croatian laws and practices related to environmental and construction permitting. Key participants in the EMP have been clearly identified and include the building design teams; the regional Ministry of Environment, Physical Planning and Construction Office that issues construction permits; the construction contractor; Croatian Waters; and the farmer as operator.

Environmental Monitoring

7. The environmental review recommends that an up-front team comprised of representatives of MAFWM (Payment Directorate), and designers be established to ensure that the EMP measures related to the environment are included in the design stage of financed investments. A special supervision or monitoring of the construction phase was not expected to be needed as long as the contractors are provided with a copy of the EMP and its implementation

becomes a binding part of their contract. The compliance with EMP will be described in regular Progress reports as requested by Project/Loan Agreement. The monitoring prescribed in the EMP comes from the Croatian environmental legislation and, therefore, will also be supervised by the inspection of Ministry of Environmental Protection, Physical Planning and Construction and Croatian Waters.

Public Disclosure

8. EMP has been published on the website of MAFWM and Vukovar-Sirmium, Osiječko-Baranjska and Varazdinska counties' official websites. Croatian version on: http://www.mps.hr and English version on http://www.mps.hr. It was disclosed at the Bank's Infoshop on July 30, 2007.

Other Safeguard Policies

9. During the project preparation triggering of the Involuntary Resettlement policy, Natural Habitats policy, Cultural Resources policy and Project on International Waterways policy were discussed. The Involuntary Resettlement was not triggered for the reason that the investments will not involve any land acquisition or required the displacement of persons. All investments will be made on private land by the respective owners, which will be supported by proof of clear land ownership. The proposed construction sites are not known at the appraisal stage, however, cultural properties are unlikely to be found in these agricultural areas, therefore, the Bank operation policy OP/BP 4.11 on Cultural Resources does not apply to this investment. The EMP, however, includes provisions and actions to be taken in case of the event of any cultural property are encountered during the civil works. Project activities will not take place in any sensitive natural habitats; hence the Natural Habitats safeguard policy is not triggered. The Projects on International Waterways safeguard policy is not triggered since the project involves neither the use, nor potential pollution of the international waterways. Proposed project activities do not address or affect water supply nor target waste water treatment. The project is specifically designed to reduce nutrient discharges to Croatia's surface and ground water bodies in the Danube watershed with the ultimate aim of improving the quality of the Danube River and Black Sea. Activities under the project will focus on sustainable land management practices (improved manure management and promotion of environmentally friendly agricultural practices) so that there is reduced nutrient runoff from agricultural sources to local water bodies.

Annex 11: Project Preparation and Supervision

CROATIA: Agricultural Pollution Control Project

	Planned	Actual
PCN review		09/28/06
Initial PID to PIC		
Initial ISDS to PIC		
Appraisal	July 31, 2007	August 3, 2007
Negotiations	September 18, 2007	October 26, 2007
Board/RVP approval	December 6, 2007	
Planned date of effectiveness	January 2007	
Planned date of mid-term review	December 2009	
Planned closing date	July 2012	

Key institutions responsible for preparation of the project:
Ministry of Agriculture, Forestry and Water Management (MAFWM)

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Aleksandar Nacev	Senior Agriculturist	ECSSD
Meeta Sehgal	Extended Term Consultant	ECSSD
Garry Smith	Institutional/Livestock Specialist	FAO
Natasa Vetma	Environmental Specialist	ECCU5
Helen Shahriari	Senior Social Scientist	ECSSD
Paula Lytle	Senior Social Development Specialist	ECSSD
Solvita Klapare	Operations Analyst	ECSSD
Antonia Viyachka	Procurement Officer	ECSPS
Iwona Warzecha	Financial Management Specialist	ECSPS
Claudia Pardinas Ocana	Senior Counsel	LEGEM
Sharifa Kalala	Program Assistant	ECSSD

Bank funds expended to date on project preparation:

1. Bank resources: US$263,666.80
2. Trust funds: US$0
3. Total: US$263,666.80

Estimated Approval and Supervision costs:

1. Remaining costs to approval: US$40,000
2. Estimated annual supervision cost: US$60,000

Annex 12: Documents in the Project File

CROATIA: Agricultural Pollution Control Project

Working Papers:

1. Agricultural Pollution Control Program for Croatia: Overall Technical Analysis (GEF Bank Budget consultancy)
2. Feasibility Study for Manure Storage Systems under Agricultural Pollution Control Project (GEF Bank Budget consultancy)
3. Water Quality Monitoring Program for the Agricultural Pollution Control Project (GEF Bank Budget consultancy)
4. Environmental Management Plan for the Agricultural Pollution Control Project (Government of Croatia)
5. Social Analysis for the Agricultural Pollution Control Project (Government of Croatia)
6. Agricultural Pollution Control Project Financial Management Manual (Government of Croatia)
7. Operation Manual for Agricultural Pollution Control Project (Government of Croatia)
8. Beneficiary and Public Procurement Guide (Government of Croatia)

Annex 13: Statement of Loans and Credits

CROATIA: Agricultural Pollution Control Project

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P093767	2007	TRADE & TRANS INTEG	75.30	0.00	0.00	0.00	0.00	76.97	0.00	0.00
P095389	2006	District Heating Project	29.80	0.00	0.00	0.00	0.00	31.42	0.00	0.00
P091715	2006	AGRIC ACQUIS COHESION	30.14	0.00	0.00	0.00	0.00	33.05	-0.17	0.00
P086671	2006	EDUC SECTOR DEV PROGRAM (CRL)	85.00	0.00	0.00	0.00	0.00	80.45	7.19	0.00
P080258	2006	SCI & TECH	40.00	0.00	0.00	0.00	0.00	39.04	2.92	0.00
P069937	2005	SOC WELF DEVT	40.00	0.00	0.00	0.00	0.00	38.42	1.49	0.00
P076730	2005	SOC & ECON REC	45.68	0.00	0.00	0.00	0.00	40.41	6.68	0.00
P071464	2005	RENEW ENERGY RES (GEF)	0.00	0.00	0.00	5.50	0.00	4.95	0.40	0.00
P079978	2004	ENERGY EFF	5.00	0.00	0.00	0.00	0.00	4.88	2.94	0.00
P071461	2004	ENERGY EFF (GEF)	0.00	0.00	0.00	7.00	0.00	5.54	5.15	0.00
P065416	2004	COAST CITIES POLLUT'N CONTROL (APL #1)	47.54	0.00	0.00	0.00	0.00	42.90	35.59	1.86
P043195	2004	RIJEKA GATEWAY	156.50	0.00	0.00	0.00	0.00	66.91	33.25	-14.63
P067149	2003	REAL PROP REG & CADASTRE	25.70	0.00	0.00	0.00	0.00	15.17	-0.29	0.00
P063546	2003	PENSION SYS INVST	27.30	0.00	0.00	0.00	0.00	13.02	13.02	0.00
P042014	2002	KARST ECOSYS CONSV (GEF)	0.00	0.00	0.00	5.07	0.00	1.16	4.34	4.06
P043444	1998	MUN ENV INFRA	36.30	0.00	0.00	0.00	0.00	12.07	10.52	5.18
		Total:	644.26	0.00	0.00	17.57	0.00	506.36	123.03	- 3.53

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

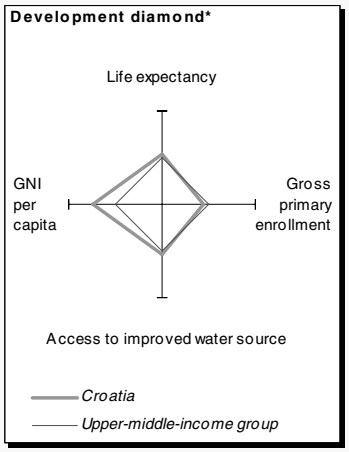
		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1998	Belisce	3.49	6.01	0.00	0.00	3.49	6.01	0.00	0.00
2002	Belisce	12.75	0.00	0.00	9.59	12.75	0.00	0.00	9.59
2006	Belje	50.99	0.00	0.00	0.00	50.99	0.00	0.00	0.00
1999	Croatia Capital	0.00	2.37	0.00	0.00	0.00	2.04	0.00	0.00
1999	E&S Bank	1.85	0.00	0.00	0.00	1.85	0.00	0.00	0.00
2002	E&S Bank	20.40	0.00	0.00	0.00	20.40	0.00	0.00	0.00
2005	PBZ	95.61	0.00	0.00	0.00	95.61	0.00	0.00	0.00
2004	Schwarz Group	49.40	0.00	0.00	0.00	49.40	0.00	0.00	0.00
2000	Viktor Lenac	0.06	0.00	0.50	0.03	0.06	0.00	0.00	0.03
	Total portfolio:	234.55	8.38	0.50	9.62	234.55	8.05	0.00	9.62

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2002	ESBank Zagreb II	0.01	0.00	0.00	0.00
2004	Viktor Lenac Exp	0.00	0.00	0.00	0.00
	Total pending commitment:	0.01	0.00	0.00	0.00

Annex 14: Country at a Glance

CROATIA: Agricultural Pollution Control Project

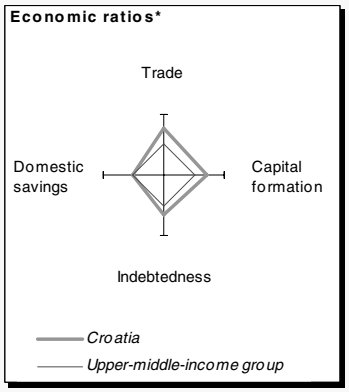
POVERTY and SOCIAL	Croatia	Europe & Central Asia	Upper-middle-income
2005			
Population, mid-year *(millions)*	4.4	473	599
GNI per capita *(Atlas method, US$)*	8,300	4,113	5,625
GNI *(Atlas method, US$ billions)*	36.9	1,945	3,368
Average annual growth, 1999-05			
Population *(%)*	-0.4	0.0	0.6
Labor force *(%)*	-0.5	0.6	1.2
Most recent estimate (latest year available, 1999-05)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	57	64	72
Life expectancy at birth *(years)*	75	69	69
Infant mortality *(per 1,000 live births)*	6	28	23
Child malnutrition *(% of children under 5)*	..	5	7
Access to an improved water source *(% of population)*	100	92	94
Literacy *(% of population age 15+)*	98	97	94
Gross primary enrollment *(% of school-age population)*	94	104	107
Male	95	105	108
Female	94	102	106



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

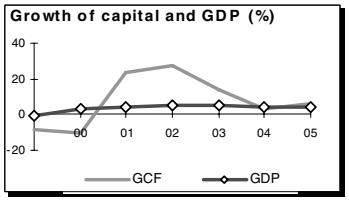
	1985	1995	2004	2005
GDP *(US$ billions)*	..	18.8	35.3	38.5
Gross capital formation/GDP	..	17.6	30.9	31.3
Exports of goods and services/GDP	..	38.6	47.4	47.1
Gross domestic savings/GDP	..	6.7	21.6	22.6
Gross national savings/GDP	..	10.8	23.6	22.6
Current account balance/GDP	..	-7.5	-4.7	-3.5
Interest payments/GDP	..	0.5	3.1	..
Total debt/GDP	..	20.4	89.5	..
Total debt service/exports	..	4.7	26.0	..
Present value of debt/GDP	..	..	87.0	..
Present value of debt/exports	..	..	150.6	..

	1985-95	1995-05	2004	2005	2005-09
(average annual growth)					
GDP	-5.9	3.8	3.8	4.3	3.7
GDP per capita	-6.0	4.2	3.8	4.2	4.1
Exports of goods and services	..	6.3	5.4	4.6	4.2

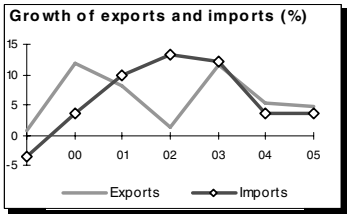


STRUCTURE of the ECONOMY

	1985	1995	2004	2005
(% of GDP)				
Agriculture	..	10.7	7.2	7.0
Industry	..	34.3	30.3	30.8
Manufacturing	..	24.3	18.4	17.0
Services	..	55.0	62.5	62.2
Household final consumption expenditure	..	63.9	57.4	57.0
General gov't final consumption expenditure	..	29.4	21.0	20.4
Imports of goods and services	..	49.5	56.7	55.8



	1985-95	1995-05	2004	2005
(average annual growth)				
Agriculture	-6.7	-0.3	4.2	0.1
Industry	-12.6	4.0	4.3	4.8
Manufacturing	-12.9	4.1	4.0	4.8
Services	-3.0	4.8	4.1	4.4
Household final consumption expenditure	..	3.7	3.9	3.4
General gov't final consumption expenditure	..	0.4	-0.3	0.8
Gross capital formation	..	8.6	3.5	6.3
Imports of goods and services	..	6.4	3.5	3.5



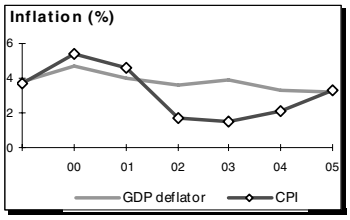
Note: 2005 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* 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.

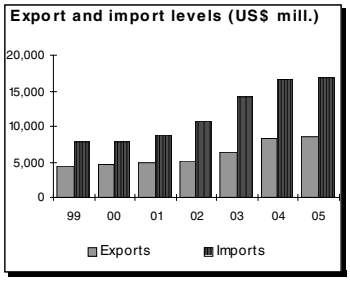
PRICES and GOVERNMENT FINANCE

	1985	1995	2004	2005
Domestic prices				
(% change)				
Consumer prices	..	4.0	2.1	3.3
Implicit GDP deflator	..	5.3	3.3	3.2
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	47.2	45.3	42.0
Current budget balance	..	2.7	3.8	1.2
Overall surplus/deficit	..	-1.3	-4.1	-3.6



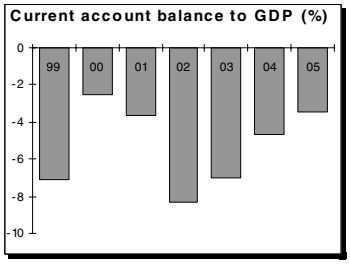
TRADE

	1985	1995	2004	2005
(US$ millions)				
Total exports (fob)	..	4,517	8,208	8,619
Capital goods	..	250	449	471
Chemicals	..	392	909	936
Manufactures	..	1,806	3,824	4,016
Total imports (cif)	..	7,745	16,555	16,808
Food	..	771	1,190	1,556
Fuel and energy	..	860	1,987	2,046
Capital goods	..	1,952	5,739	5,992
Export price index *(2000=100)*	..	67	73	..
Import price index *(2000=100)*	..	67	73	..
Terms of trade *(2000=100)*	..	99	100	..



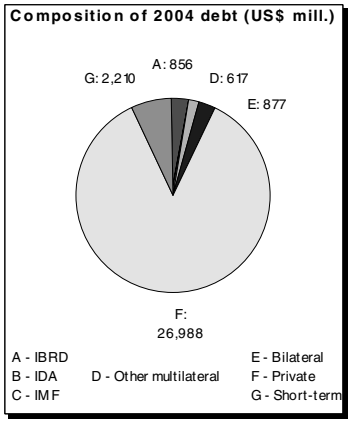
BALANCE of PAYMENTS

	1985	1995	2004	2005
(US$ millions)				
Exports of goods and services	..	6,972	17,828	18,479
Imports of goods and services	..	9,152	20,180	20,098
Resource balance	..	-2,181	-2,353	-1,619
Net income	..	-29	-772	-936
Net current transfers	..	802	1,483	1,220
Current account balance	..	-1,407	-1,641	-1,336
Financing items (net)	..	1,850	1,709	1,659
Changes in net reserves	..	-443	-68	-323
Memo:				
Reserves including gold *(US$ millions)*	..	1,895	8,759	9,082
Conversion rate *(DEC, local/US$)*	..	5.2	6.0	5.9



EXTERNAL DEBT and RESOURCE FLOWS

	1985	1995	2004	2005
(US$ millions)				
Total debt outstanding and disbursed	..	3,830	31,548	..
IBRD	..	117	856	798
IDA	..	0	0	0
Total debt service	..	366	5,294	..
IBRD	..	28	83	96
IDA	..	0	0	0
Composition of net resource flows				
Official grants	..	31	63	..
Official creditors	..	20	13	..
Private creditors	..	265	3,718	..
Foreign direct investment (net inflows)	..	114	1,243	..
Portfolio equity (net inflows)	..	5	177	..
World Bank program				
Commitments	..	120	48	..
Disbursements	..	50	98	81
Principal repayments	..	20	62	70
Net flows	..	29	36	11
Interest payments	..	7	21	26
Net transfers	..	22	15	-15



Note: This table was produced from the Development Economics LDB database. 8/13/06

Annex 15: Incremental Cost Analysis

CROATIA: Agricultural Pollution Control Project

Project Overview

1. The global environmental objective of the project (GEF Alternative) is to improve the waters of the Black Sea by reducing nutrients loads flowing into the Danube River and Black Sea. Towards this, the proposed project, to be implemented over four years, will assist the Government of Croatia to reduce nutrient discharges into surface and ground water bodies that flow into the Danube River through: (i) the promotion of nutrient mitigating measures to water bodies from point source pollution (manure management); (ii) development and promotion of agri-environment measures (Code of Good Agricultural Practices) that will improve the adoption of environmentally-friendly agricultural practices by individual farmers; (iv) a broad public awareness campaign to disseminate the benefits of project activities; and (iv) project management. By significantly increasing the adoption of sustainable environmentally-friendly agricultural practices the project will assist the Government of Croatia not only with meeting its international obligations to improve the quality of the Danube River and Black Sea but also to implement the EU Nitrates Directive, a mandatory requirement for EU accession. The GEF Alternative intends to achieve project objectives at a total incremental cost of US$6.0 million.

Context and Development Goals

2. During the past few decades, the Black Sea has suffered severe environmental damage, mainly due to coastal erosion, eutrophication, insufficiently treated sewage, introduction of exotic species, and inadequate resource management all of which led to a decline of its biological diversity, loss of habitat and long-term ecological changes. There is general agreement that eutrophication, (caused by an increase in nutrient flux down the major rivers in the late 1960s when fertilizer and chemical use increased markedly as a result of the "Green Revolution" and subsidization of these inputs, and poor management of animal waste), is the most serious problems facing the Danube River and the Black Sea over the medium- to long-term. The effect of eutrophication on the northwestern shelf of the Black Sea is generally recognized as disastrous and is primarily related to nutrient loads carried by the Danube River.

3. ***Nutrient flow from the Danube River.*** Black Sea Environmental Program (BSEP) Studies revealed that 58 percent of the total nitrogen and 66 percent of the total phosphorous flowing in dissolved form into the Black Sea come from the Danube basin. More than half of all nutrient loads into the Danube River originate from agriculture, about one fourth from private households and about 10–13 percent from industry. The most important pathways into the Danube basin for phosphorous are direct discharges (33 percent of the total flow, predominantly from agriculture), erosion/runoff (31 percent, mainly agriculture) and sewage treatment plant effluents (30 percent). Nitrogen loads come from: direct discharges (35 percent), erosion/runoff and sewage treatment plant effluents in more or less equal shares, again agriculture being the source for more than half the total nitrogen run-offs in many countries.

4. ***Nutrient Flow from Croatia.*** Agriculture is a significant sector of the Croatian economy accounting for 5.8 percent of GDP and about 10 percent of total exports. Agriculture is most extensive in the Pannonian plain where livestock density is the highest in the country. It is estimated that Croatian livestock produces approximately 65,000 tons of nitrogen and 33,000 tons of phosphorous annually, most of which flow unchecked into the local water bodies. The majority of the medium- and small-scale farms do not have manure storage facilities and manure is often simply piled outside the stables on bare soil. A very small percentage of farmers have some storage facilities, but these are generally inadequate – either not made from concrete, or of insufficient capacity. This, coupled with uncontrolled application of manure and slurry, is compounding the problem of rising levels of nitrate pollution in soil and water bodies in the Pannonian plain, which if left unaddressed would pose serious environmental risks for the population in the region and Croatia at large.

5. In addition to unsustainable manure management, intensive fertilizer application has been identified as a significant source of nutrient pollution in Croatian soil and waters. In 2001, Croatian consumption of nutrients from fertilisers on arable land was 58 percent higher that of the EU-15 countries. One cause exacerbating the situation is the limited knowledge and experience of the Croatian farming community with nutrient pollution control measures. Farmers are generally unaware of the damage that can be caused by inappropriate nutrient management practices. Unsustainable agricultural practices: inadequate crop rotation, over use of agricultural inputs, absence of anti-erosion measures, etc. are resulting in poor yields and increasingly poor soil and water conditions characterized by rising levels of nutrients. Such pollution, both point-source from manure, and non-point from unsustainable agricultural practices, are of particular concern, especially in light of the high groundwater table that characterizes the Pannonian plain so that during winter and early spring, groundwater often merges with the surface waters and contaminates the country's drinking water supplies.

6. Data from the Croatian Water Resources Management Plan indicate that agriculture accounts for more than 90 percent of the total nitrogen pressure on Croatian water resources each year. In the Danube basin area of Croatia, studies conducted in 2005, indicate that 51 percent of the nitrogen load to the surface waters in the basin is from agriculture. Twenty-five percent of the Croatian population is supplied by drinking water from private wells and other non-public water supply sources, and this percentage is even higher (32 percent) in the Danube basin. The majority of these non-public water supply systems face severe problems with nitrates and concentrations often exceed the MAC. For the purposes of this project, the Croatian Public Health Institute collected data on nitrate content in drinking water from ten Pannonian Plain counties for the period 2000-2007. An analysis of the data revealed that during the period 2000-2006, one out of every three samples analyzed from private wells exceeded the MAC for nitrates. The situation with the public water supply was somewhat better since on average during this period only 2.2 percent of water samples exceeded the MAC for nitrates. However, the situation with local public water supply sources (usually small village or communal springs or wells) was less satisfactory, as about 10 percent of these exceeded the MAC for nitrates, and in some counties N content was 30-40 percent above the MAC. Public health repercussions of nutrient, agrochemical and bacterial groundwater pollution in an environment where access to piped household water supply is inadequate, is widely recognized by the rural population of the Pannonian plain to be the major threat to the wellbeing of the affected communities

7. Following the political and social upheaval caused by the transition to a market economy, and the accompanying economic decline in the region, riparian countries have reduced the overall discharge of nutrients into the Danube River and the Black Sea. Largely because of this, and also because of the success of nutrient load reduction programs, particularly, in the upper Danube countries, there has been partial recovery of coastal ecosystems. Nevertheless, the overall discharge of nutrients is still higher than what it was in the 1960s. The economic downturn in the coastal countries is temporary, and offers a window of opportunity for actions aimed at improving the marine ecosystems and avoiding the return to the previous situation of chronic eutrophication.

Baseline Scenario

8. The baseline scenario includes activities that will promote Croatia's efforts towards improving the waters of the Black Sea without the proposed new GEF support. The Government of Croatia is committed to reducing nutrient pollution to the Danube River and Black Sea and is a member of the Environmental Program for the Danube River Basin (EPDRB) established in 1991 to build regional cooperation in water management and initiate high priority actions that would reduce pollution loads to the Danube. It is also a signatory to the Danube River Protection Convention (DRPC) signed in 1994 whereby the signatories to the Convention agreed on "conservation, improvement and the rational use of surface and groundwater in the catchment area", to "control the hazards origination from accidents", and to "contribute to reducing the pollution loads of the Black Sea from sources in the catchment area." Thus reduction of nutrient run-off from agriculture has been accorded priority status and forms an integral part of the country's environmental strategy.

9. The government's efforts in nutrient management is also reflected in the country's commitment to moving towards EU accession by addressing the EU Nitrate Directive and putting in place EU-compliant agri-environment policies. Croatia's access to EU has significant implications for the organization and management of an improved agricultural sector. Farmers and agro-processors in Croatia are building capacity to enter and compete in EU markets and must gain access to appropriate knowledge, skills and technologies that will create an agricultural sector in compliance with EU requirements. Only then can the sector become competitive in the EU. The MAFWM has established a comprehensive agricultural support scheme for farmers. This scheme includes provisions for promotion of environmentally friendly agriculture practices. However, as the farming community has limited experience with nutrient pollution control, measures are needed to change behavior, provide information and cost effective agricultural technologies and practices, as well as access to entities delivering such services. In other words, farmers need assistance to develop and implement action plans, which, while increasing productivity, reduce nutrient discharge to water bodies, thereby promoting conservation and sustainable use of the country's natural resource base.

10. The current demands on the Ministry of Environment are extremely high given the extensiveness of the environment acquis and country commitments. Implementation of the ND is expected to cost up to EUR850 million. Implementation of the EU ND is mandatory and hence Croatia needs to initiate measures for implementing the EU Nitrates Directives and develop a long term program for nutrient reduction. In the absence of a GEF program the government would need to set aside own funds or access them from a new source with less

experience on these issues. Most importantly, the lack of GEF involvement in the baseline would result in a disengagement of Croatia at the broader international level as their capacity to continue to reach out to share experiences with other countries in light of the demanding programs at home, would be extremely limited. The GEF Alternative would go beyond the Baseline Scenario by allowing the project to fund and integrate activities designed to reduce non-point source pollution from agriculture with other environment investments.

11. Under the baseline scenario, Croatia's efforts towards improving water quality is ongoing through a variety of funding instruments and donors, including World Bank loans, GEF grants, and EU-funded programs. These are briefly outlined below:

12. *Agricultural Acquis Cohesion Project*. The project aims to develop sustainable systems and capacities within the Government of Croatia to enable the country to capture benefits in the agricultural sector accruing from accession to the European Union and to meet EU *acquis* requirements, including its AE measures. These outcomes are envisaged to be achieved through: (i) implementation of EU *acquis* in rural development; (ii) empowerment of MAFWM management and administration; and (iii) ensuring safe food and SPS conditions. A key activity under component (i) would include a program of investments and technical assistance to private and public sector farmers and agro-processors in environmentally friendly agricultural practices so as to "keep their land in good agricultural condition". By assisting the government of Croatia to accredit agri-environment measures under IPARD, the project will help in leveraging substantial investment grants for nutrient mitigating activities. Estimated baseline cost: US$13.9 million

13. *Capacity Building and Development of Guidelines for the Implementation of the Water Framework Directive*. Supported by the EU-CARDS 2004 Program, the overall objective of the project is to improve the water quality standards and water management in Croatia in line with EU standards and requirements. It also strives at further institutional and administrative capacity strengthening of the Croatian water management administration as well as relevant state institutions, stakeholders and NGOs. Estimated Baseline Cost: US$1.6 million.

14. *Approximation of Croatian Water Management Legislation with the EU Water Acquis.* Supported under EU-CARDS 2003, the project aims at supporting MAFWM with: (a) completing a legal, administrative and institutional assessment and identifying regulatory actions for further approximation to the EU water *acquis*; (b) preparing a draft Strategy and Action Plan for the approximation of Croatian legislation with EU water acquis as a part of the overall National Environmental Accession Strategy developed under the CARDS 2002 project led by MEPPPC; (c) conducting, for the identified areas, a horizontal impact assessment on Nitrates, Drinking Water, dangerous substances and UWWTD; (d) drafting of the compliance plan for the UWWT Directive; and (e) definition of priority areas for future activities of the SAPARD Program - Agriculture and Rural Development Plan 2006. Estimated baseline cost: US$1.3 million.

15. *EU-LIFE Project*. Within the framework this project, the EU is supporting the development of a Croatian soil monitoring program. It aims at developing a Soil Monitoring Program that will serve as the basis for the development of a harmonized and coherent Croatian soil information system, compatible with the European Soil Information System – EUSIS, and

will provide vital data for policy-making and international networks. Estimated Baseline Cost: US$0.73 million.

16. *Investments in Agricultural Holdings*. This SAPARD-supported measure provides for investments in the construction and/or adaptation and/or equipping of animal sheds, including "*investment in animal manure, slurry reservoirs and specialized manure*", which is listed as a (sub) measure eligible for stand-alone financing. For investments in the construction of livestock farms, applicants must demonstrate at the end of the investment that manure is stored and managed according to EU standards (details will be elaborated in the "Ordinance on SAPARD program implementation"). The program requires 50 percent co-financing (in-kind contribution does not count towards this). So far, only one round of grant distribution has been realized. Estimated baseline cost: US$1.3 million.

17. *Danube Regional Project*. The project involves all Danube Basin countries and covers some 80 activities, including analysis of agricultural policies and pilot projects on the reduction of nutrients and other harmful substances from agricultural point sources and non-point sources. The project has produced several policy analysis documents and organized several capacity building events on agricultural pollution control. In 2004, it provided support in developing the concept of Best Agricultural Practice (BAP) in the Danube River Basin countries, including improvements in the management of livestock manure, minimizing the use of fertilizers, better use of crop rotations and the creation of buffer zones. In 2005, the Danube Regional Project provided a EUR 5,000 grant to the Croatian office of the Regional Environmental Centre in order to implement a training program on best agricultural practices in the Danube area of Croatia. Estimated baseline Cost: US$10,000

18. ***Costs.*** Total expenditures under the baseline scenario are estimated at US$18.84 million from the Government and other donors.

Global Environmental Objective

19. The global environmental objective of the project is to reduce discharge of nutrients into water bodies leading to the Danube River and Black Sea through integrated land and water management. Activities promoted under the GEF Alternative will increase significantly the use of environmentally friendly agricultural practices and thereby reduce nutrient discharge to surface and ground waters in Croatia.

20. ***Scope***. The GEF Alternative would provide the means (above and beyond the Baseline Scenario) to help Croatia address the nutrient reduction challenge. To achieve this, the project would support: (i) ***Promotion of Nutrient Mitigating Measures to Water Bodies from Point Source Pollution (Manure Management)(Total cost US$14.69 million, of which GEF US$3.36 million)*** through the promotion of sustainable manure management practices, including storage, handling and application; (ii) ***Development and Promotion of Agri-Environment Measures (Total Cost US$3.96 million, of which GEF US$1.30 million)*** whereby the project will assist with the implementation of the Code of Good Agricultural Practices, its dissemination among farmers, and provide training in environmentally-friendly agricultural practices, such as conservation tillage, optimal use of fertilizers, etc. through field demonstrations; (iii) ***a Public Awareness and Replication Strategy (Total cost US$0.74 million of which GEF US$0.24***

million), whereby a broad public information campaign of the project's activities and benefits will be undertaken at the local and national levels to achieve replication of project interventions in other similar areas within Croatia as well as other Black Sea riparian countries and EU candidate countries. The project will provide for the organization of national and regional workshops, field trips, and study tours where knowledge and skills on effective low-cost environmentally friendly technologies will be shared; and (iv) ***Project Management (Total cost US$0.60 million, of which GEF US$0.10 million)*** for effective implementation of project activities.

21. Implementation of the GEF Alternative would go beyond the Baseline Scenario (which would result in limited impact on water quality improvement) by allowing the project to promote environmentally friendly agricultural practices on a national scale that will result in substantial improvement in nutrient loads to the Danube River and Black Sea. GEF funds will provide incremental support for nutrient control measures under the proposed project. Investments in sustainable farm management practices in the selected project areas that will assist Croatia not only meet the requirements of the EU Nitrate Directive but also comply with several international conventions to improve the waters of the Danube and Black Sea. Improved farm practices will also result in improved farm profitability. The public awareness program envisaged under the project to demonstrate the benefits of improved environmental practices for non-point source pollution control will help in project replication within Croatia and internationally, thus resulting in a larger impact under the project.

Incremental Costs

22. The difference between the cost of the Baseline Scenario US$18.8 million and the cost of the GEF Alternative US$24.9 million is US$6.1 million, which represents the incremental cost for achieving sustainable global environmental benefits under the proposed project.

Incremental Cost Matrix

Component	Cost Category	US$ (M)	Domestic Benefit	Global Benefits
1. Improved Manure Management Practices	Baseline	12.4	Improved local capacity and knowledge to respond to the need for environmentally sound agricultural practices Improved land-use practices Improved water quality Improved health and hygiene	Reduced nutrient loads into the Danube River and Black Sea Protection of natural habitat.
	GEF Alternative	16.7		
	Incremental	4.3		
2. Implementation of Other Agri-Environment Measures, including Code of Good Agricultural Practices	Baseline	5.4	Strengthened policy and structural framework for agricultural practices designed to reduce nutrient loads to Black Sea Improved agricultural practices in compliance with EU requirements resulting in increased access to EU markets	Reduced nutrient loads due to water bodies draining into Danube river and Black Sea. Protection of natural habitat.
	GEF Alternative	6.9		
	Incremental	1.5		
3. Public Awareness and Replication Strategy	Baseline	0.5	Increased potential to replicate project activities in similar areas of Croatia	High potential to replicate project activities outside Croatia, in other Black Sea, Danube river and Baltic Sea riparian countries
	GEF Alternative	0.7		
	Incremental	0.2		
4. Project Management Unit	Baseline	0.5	Increased capacity for successful project management and implementation	
	GEF Alternative	0.6		
	Incremental	0.1		
Total	**Baseline**	**18.8**		
	GEF Alternative	**24.9**		
	Incremental	**6.1**		
	GEF Grant	**5.0**		
	Co-financing	**1.1**		
	Associated IBRD financing	**13.9**		

Annex 16: STAP Review

CROATIA: Agricultural Pollution Control Project

Scientific and technical soundness

The scientific and technical basis of the project is simple and sound. It addresses the critical issue of reducing nutrient pollution of ground water and of catchment run-off draining to the Danube River. Project design builds on and reflects lessons and experience in the Agricultural Pollution Control Projects currently being undertaken in catchments draining to the Black Sea and the Baltic Sea. The proposal focuses on interception and storage of animal waste so that it does not reach the water table.

The challenge is attract the attention and support of a significant number of farmers. The problem of poor management of livestock waste is compounded by inappropriate use of chemical fertilizers. The key performance outcome of the project should be that it provides a basis of farmer support for continuing roll-out of livestock waste management and good agricultural practice. The combination of poor livestock waste management and inappropriate use of chemical fertilizers is environmentally damaging and, particularly for poorer farmers, economically inefficient. It also has significant human health implications.

The focus of the project is globally important in the context of the Danube being the source of more than half of the dissolved nitrogen and phosphorous reaching the Black Sea. ..

The national policy level and imperative is clear in relation to the EU acquis. USD3.36 million of the proposed GEF expenditure is for grants for 75% of the tax inclusive cost of manure storage and management. To qualify for such a grant farmers have provide the remaining 25% in cash.

The major challenge is to address the limited awareness of the Croatian farming community. The proposal addresses USD 1.4 million to public awareness and development of a code of good agricultural practice.

While the project addresses nitrate and phosphate pollution the proposal also mentions the problems of reduced soil fertility through loss of fiber. Given that cropping agriculture includes substantial plantings of wheat and maize there would seem to be scope for composting animal wastes and straws to rebuild soil fiber levels and provide slower release natural fertilizer application. The extent to which this might be practical is not clear – the implication is that livestock farming and cropping are geographically separated activities.

Global environment benefits and costs

The project addresses 3 counties on the Pannonian plain that drains into the River Danube and thus into the Black Sea. Nutrient pollution of the Black sea has been identified as an environmental issue of global significance. The imperatives of Croatian national compliance with EU requirements and the reflection of lessons from other Danube nitrate/phosphate

reduction projects indicate that this is a priority issue. It will take some years and extension to other areas but it is an important demonstration and commitment. It is an important step towards delivering clear global benefits by addressing a key element in a major source of nutrient pollution of the Black Sea. The design of the project is directly linked to the GEF supported Strategic Action Plan for the Protection and Rehabilitation of the Black Sea" (BSSAP).

The context of GEF goals and guidelines

The proposal provides a good discussion. The project clearly addresses the objectives of the integrated land and water multiple focal area. The measures to reduce pollution to the Black Sea and Danube River, noted above, relate to Operational Program 8, the Waterbody-based Operational Program. It addresses the objectives of providing a basis for achieving sustainability, improving human and environmental health and economic outcomes and it applies the guidelines with respect to incremental costs and the log-frame.

Regional Context

The project and the related loan program have high priority in the context of obligations under the environment acquis as a member of the European Union. It is one of a number of urgent measures that have current or probable funding from the EU and a range of donors. As noted earlier the project is important in the context of the rehabilitation of the Black Sea and is linked with the "Strategic Action Plan for the Protection and Rehabilitation of the Black Sea" (BSSAP), formulated with the assistance of the GEF discussed above.

Replicability

The project is based on application of methodologies developed in GEF projects addressing agricultural pollution of ground water and rivers draining to enclosed seas. In the short term the key issue for replication is understanding and acceptance by farmers of the economic and public health benefits of proper use and management of animal wastes and chemical fertilizers. The project design addresses this by devoting more than one third of the proposed funding to public awareness, promotion of good agricultural practices and replication.

Sustainability

The project is an important part of a larger context. By providing demonstrations and contributing to public awareness, education and extension capacity it should contribute materially to the development of a much larger national program.

Contribution to future strategies and policies

Success with this project will contribute to the broader adoption of pollution minimizing agricultural and rural community waste management practices and to meeting Croatia's commitments under the environmental acquis of the European Union.

Secondary Issues

Linkages to other programmes and action plans are well identified in annex 2 of the proposal.

Involvement of stakeholders

The public awareness, education and extension elements of the project proposal address engagement of stakeholders as a critical issue. Stakeholder and local government commitment and involvement are key elements in the community considerations in the uptake and routine adoption of pollution minimizing agricultural practices.

Risk assessments

I am not familiar with the field operating situation but note that the GEF component is part of a much larger package. The risks seem to be reasonably discussed and I concur with the assessments

Costs

Subject to the qualification above, the amounts and relativities of funding proposed for the various components appear reasonable.

Conclusion

This is a soundly designed and important catalytic project. The GEF grants and linked public awareness, education and extension elements of the project tackle critical issues of agricultural pollution of ground water and rivers in ways that are appropriate to the social, economic and environmental context of Croatian agriculture in the catchments draining to the Danube River. They are centrally linked to a core government priority of meeting commitments in relation to the environmental acquis of the European Union. I recommend that it should proceed.

R A Kenchington
8 July 2007

Annex 17: Maps

CROATIA: Agricultural Pollution Control Project

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CROATIA

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- SELECTED CITIES AND TOWNS
- COUNTY (ŽUPANIJA) CAPITALS
- NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- COUNTY (ŽUPANIJA) BOUNDARIES
- INTERNATIONAL BOUNDARIES

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