

UNDP/GEF Danube Regional Project

Policies for the Control of Agricultural Point
and Non-point Sources of Pollution
&
Pilot Projects on Agricultural Pollution Reduction
(Project Outputs 1.2 and 1.3)

**Inventory of Policies for
Control of Water Pollution by Agriculture in
the Central and Lower Danube River
Countries**

Final Report
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GFA Terra Systems
in co-operation with **Avalon**



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”Policies for the control of agricultural point and non-point sources of pollution”
and “Pilot project on agricultural pollution reduction”
(Project Outputs 1.2 and 1.3)

**Review of Agricultural Water Pollution Control and Policy
in the Danube River Basin Countries**

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Preface

The overall aim of the Danube Regional Project (DRP) is to support the activities of the International Commission for Protection of the Danube River (ICPDR) in implementing a regional approach in 11 countries of the Danube River Basin to solving the trans-boundary problems associated with the protection of the Danube River - including the sustainable management of surface and ground waters, the reduction of water pollution and the protection of water related ecosystems.

Objective 1 of the DRP is the creation of sustainable ecological conditions for land use and water management. Under this objective there are two key outputs relating to agriculture:

Output 1.2 – *reduction of nutrients and other harmful substances from agricultural point source and non-point sources through agricultural policy changes*

Output 1.3 – *development of pilot projects on reduction of nutrients and other harmful substances from agricultural point source and non-point sources*

The main focus of the UNDP/GEF assistance to controlling agricultural pollution is to:

- identify the main sources of agricultural pollution within the countries of the DRB
- review the current state of policy development for agricultural pollution control in the DRB countries
- identify the main administrative, institutional and funding deficiencies in the development and implementation of these policies
- provide support for developing the concept of Best Agricultural Practice (BAP) in the DRB countries – including improvements in the management of livestock manure, minimising the use of fertilisers and pesticides, better use of crop rotations and creation of buffer zones
- identify and develop pilot programmes and projects (e.g. training and institutional development) for introducing and promoting the concept of BAP in order to improve environmental management practices in agriculture in a number of priority countries.

Phase I of Output 1.2 and 1.3 was preparatory and undertaken by GFA Terra Systems (Germany) in co-operation with Avalon (Netherlands). The GFA Terra Systems/Avalon consultancy team consisted of 6 international consultants and a network of 35 national experts in the 11 central and lower DRB countries eligible for UNDP/GEF assistance.

This report presents the survey and review of the current state of policy development for controlling agricultural pollution in the central and lower DRB, and was a key step towards:

- a) Identifying priorities for the strengthening of agricultural pollution control policies in the DRB
- b) Preparation of recommendations for agricultural policy reforms for the promotion of BAP in central and lower DRB countries to be implemented during Phase 2 of the DRP

The findings and analysis in the present report have been prepared by the principal authors Jaroslav Prazan and Dr Mark Redman, supported by contributions from the following national experts:

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Acronyms & Abbreviations

AEM	Agri-environmental Measures
BAP	Best Agricultural Practise
CGFP	Code of Good Farming Practice
DRP	Danube Regional Project
GFP	Good Farming Practice
ICM	Integrated Crop Management
IPM	Integrated Pest Management
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MoH	Ministry of Health
NVZs	Nitrate Vulnerable Zones
WB	World Bank

Country Codes Used

BG	Bulgaria
BA	Bosnia and Herzegovina – consisting of 2 entities: FedBH – Federation of Bosnia and Herzegovina RS – Republic of Srpska
CZ	Czech Republic
HR	Croatia
HU	Hungary
MD	Moldova
RO	Romania
SK	Slovakia
SI	Slovenia
UA	Ukraine
CS	Serbia and Montenegro (previously the Former Republic of Yugoslavia)

Executive Summary

The purpose of this review was to develop understanding of the existing policy context regarding agricultural pollution control in the 11 central and lower DRB countries. In particular, the review aimed to classify, describe and analyse 4 key issues:

1. The current policy objectives and strategies of the different DRB countries regarding the control of water pollution caused by agriculture
2. The various policy instruments and practical measures that are currently used in the DRB countries in order to promote the control of water pollution caused by agriculture (e.g. to implement national policy objectives) - this included regulatory, economic and advisory/informative, as well as project-based instruments and measures
3. The overall effectiveness of the "policy mix" used to control water pollution, with particular attention given to the targeting of policies and any reasons for poor implementation
4. The effectiveness of the institutional arrangements that are operating to implement the various policy instrument and measures - are the institutions effectively organised to implement policies and practice for agricultural pollution control? Do the relevant institutions have appropriate power and authority? Are sufficient resources allocated to the relevant institutions?

In order to collect the necessary information, a survey was designed and undertaken by national experts working in each country of the 11 DRB countries under study. The information gathered was analysed in order to draw recommendations for policy reform.

All national experts reported some goals for water protection in their countries, although there is a general lack of clear and targeted strategies for water protection that integrate different policy measures and show the necessary path to the achievement of indicated goals. Most progress towards the development of comprehensive water protection strategies has been made in those countries preparing for EU accession in 2004 since these countries will shortly have to take over the whole range of environmental legislation in the *acquis communautaire*, including the EU Water Framework Directive.

Four basic types of policy instrument for the control of agricultural water pollution were reviewed:

Regulatory Instruments – many of the main agricultural pollution issues (nutrients, pesticides, farm waste and agricultural run-off) are addressed by existing regulatory instruments in the DRB countries, with the most extensive coverage of issues in those countries preparing for EU accession in 2004. In most other countries, existing regulatory instruments tend to be rather general with relatively few specific regulatory instruments in place. Consequently there is much potential to prepare more targeted instruments to prevent water pollution through the control of specific farming practices – also to improve compliance and enforcement.

Economic Instruments - not surprisingly, the economic instruments used in the DRB countries are mainly disincentives due to the lack of financial resources to introduce incentive schemes. Where economic instruments are in place they do not currently address all pollution issues in all countries. The number of incentive measures in the four countries acceding to the EU in May 2004 is expected to increase with EU accession and the availability of EU co-financing for rural development measures, such as agri-environment programmes.

Advisory/Information Instruments - the transfer of knowledge and information to farmers via advisory/informative instruments can play a key role in changing the management practices of farmers and reducing agricultural pollution. However, the most frequent limitation upon this type of instrument for controlling agricultural pollution in the DRB is that the actions taken are too small with insufficient staff and financial resources. There is large potential to further develop advisory/information instruments in all countries.

Project Based – there are various types and sizes of projects targeting the prevention of agricultural water pollution with a tendency towards research and policy implementation in those countries working towards EU accession in 2004 and later.

There are significant differences regarding policies for the control of agricultural pollution among the countries of the central and lower DRB ranging from those at the early stages of designing general legal frameworks for water protection policies to those with more sophisticated legal frameworks in accordance with EU requirements and already implementing specific agricultural pollution control legislation.

Nonetheless there is scope for improvement in agricultural pollution control policies all of the central and lower DRB countries – particularly regarding implementation since all countries continue to have problems arising from the slow growth in administrative capacity where there has not been sufficient time and prevailing conditions to allow the mature enforcement of policies.

Based upon the results of the policy review, the following general recommendations were made for all central and lower DRB countries:

- to design more targeted and integrated strategies for the control of agricultural pollution
- to improve the control and enforcement of regulatory instruments for agricultural pollution control
- to put more emphasis upon the design and implementation of advice/information measures for agricultural pollution control
- to develop within available resources financial incentives as appropriate economic instruments for promoting agricultural pollution control
- to promote organic farming and integrated crop management techniques as viable alternatives to the use of agrochemicals
- to design and implement standards of Good Farming Practice
- to increase farmer and advisor awareness of the importance of agricultural pollution control
- to support capacity building amongst relevant stakeholders for the implementation of agricultural pollution control policies

These are developed further in the separate report under Output 1.2 entitled “Recommendations for Policy Reforms and for the Introduction of Best Agricultural Practices in the Central and Lower Danube River Basin countries” which outlines appropriate intervention under Phase 2 of the DRP to introduce new legal and institutional instruments for reduction and control of water pollution from non-point sources of agricultural activities.

The following strategic aims, policy objectives and measures for policy reform and the introduction of best agricultural practice (BAP) in the central and lower DRB countries are formulated on a basin-wide context and should be adopted and adapted according to national/regional level context. There are six Strategic Aims proposed:

- To reduce pollution from mineral fertilisers and manure
- To reduce pollution from pesticides
- To improve compliance and enforcement of regulatory instruments for agricultural pollution control
- To develop appropriate economic instruments for agricultural pollution control
- To develop the capacities of agricultural extension services for agricultural pollution control
- To promote organic farming and other low input farming systems

In relation to the Strategic Aims, there are a total of eleven Policy Objectives proposed for national governments to adopt:

- Develop greater understanding at a national/regional level of the relationship between agricultural practice (fertiliser, manure and land management) and the risk of diffuse nutrient pollution
- Develop appropriate policy instruments and institutional arrangements for promoting better management of fertilisers and manures
- Reduce the levels of harmful active substances used for crop protection by prohibiting and/or substituting the most dangerous priority pesticides with safer (including non-chemical) alternatives

- Improve controls on the use and distribution of pesticides
- Encourage the proper use of pesticides by farmers and other operators
- Improve the use of regulatory instruments to prevent water pollution through the control of specific farming practices
- Develop and introduce appropriate economic instruments to encourage implementation of BAP
- Review and adapt the mandate and structure of agricultural extension and advisory services
- Develop the capacity of agricultural extension and advisory services for the promotion of BAP
- Develop and support pilot projects for the promotion of BAP by agricultural extension and advisory services
- Promote certified organic farming and other low input farming systems as viable alternatives to the conventional use of mineral fertilisers and pesticides

Introduction

The overall aim of the Danube Regional Project (DRP) is to support the activities of the International Commission for Protection of the Danube River (ICPDR) in implementing a regional approach in 11 countries of the Danube River Basin to solving the trans-boundary problems associated with the protection of the Danube River - including the sustainable management of surface and ground waters, the reduction of water pollution and the protection of water related ecosystems.

Objective 1 of the DRP is the creation of sustainable ecological conditions for land use and water management. Under this objective there are two key outputs relating to agriculture, including Output 1.2 – *reduction of nutrients and other harmful substances from agricultural point source and non-point sources through agricultural policy changes*

Aim of the Review

The purpose of this review is to develop understanding of the existing policy context regarding agricultural pollution control in the 11 DRB countries supported by the DRP. In particular, the review aims to **classify, describe and analyse** 4 key issues:

1. The **current policy objectives and strategies** of the different Danube River Basin (DRB) countries regarding the control of water pollution caused by agriculture
2. The various policy instruments and practical measures that are currently used in the DRB countries in order to promote the control of water pollution caused by agriculture (e.g. to implement national policy objectives) where:
 - **policy instruments** set the framework for changing agricultural practice (e.g. a *Governmental Act for Soil and Water Protection*)
 - **practical measures** are the day-to-day farm management practices that need encouraging at farm level e.g. the prohibition of all fertiliser and manure application in water protection zones or limits on quantity of total fertiliser nitrogen application in all areas, etc.
3. The **overall effectiveness of the “policy mix”** used to control water pollution caused by agriculture – this includes the effectiveness of the policy instruments and practical measures being implemented – do they match the main water pollution problems (nutrients, farm wastes, pesticides and soil erosion)? Do they target all necessary enterprises? Are there any gaps in implementation? What is the level of enforcement? Etc.
4. The effectiveness of the **institutional arrangements** that are operating to implement the various policy instrument and measures - are the institutions effectively organised to implement policies and practice for agricultural pollution control? Do the relevant institutions have appropriate power and authority? Are sufficient resources allocated to the relevant institutions?

Policy-making for Agricultural Pollution Control

The ultimate objective of policy-making for agricultural pollution control is to reduce the risk of point source and non-point source pollution by influencing the behaviour of farmers and to improve the management practices they choose to adopt on a day-to-day basis. In order to understand the way in which policies influence farmers' behaviour (including the adoption of less polluting practices), it is necessary to consider some basic concepts about policy and policy making whereby:

- a) governmental agreements at a national and/or international level establish broad *policy frameworks*, and
- b) in order to be effective, these policy frameworks encompass three key components - a *policy strategy* (or number of strategies), *policy instruments* and an *implementation structure*.

Policy Strategies

Policy strategies expand upon a general policy framework by specifying:

- a) more detailed and quantifiable policy objectives, and;

b) how these objectives will be pursued.

Since it is rare for one policy instrument to achieve all policy objectives simultaneously, policy strategies usually include the most appropriate combination of policy instruments – the so-called “policy mix” - to achieve optimal pollution control. A number of factors are likely to influence the selection of policy instruments selected for implementing any environmental protection strategy, including:

- environmental effectiveness
- economic efficiency
- equity
- administrative feasibility and cost
- acceptability

As with many other areas of environmental policy-making, pollution control strategies are often formulated and introduced on the basis of imperfect and incomplete information. However rather than wait until full scientific certainty is reached about the nature and extent of a particular pollution risk, prudent policy-making demands that the so-called 'precautionary principle' is applied and action is taken against an environmental threat on the assumption that it is 'guilty until proven innocent'.

Policy Instruments

These are the means or mechanisms by which specific policy objectives are pursued. It is widely acknowledged that the encouragement of more sustainable and environmentally-friendly agriculture commonly depends upon using an appropriate “mix” of three types of policy instruments and measures:

1. **Regulatory Instruments** - these involve the traditional “command and control”-type policy mechanisms, such as statutory prohibitions and legal sanctions, which form the basis of state intervention and control in most developed and developing countries.

The principal roles of regulation in agricultural pollution control are to:

- a) prohibit those practices with a high risk of causing unacceptable levels of harmful and polluting substances to be released into the natural environment. This includes substances which are: i) deliberately introduced into the environment by farmers (e.g. pesticides and mineral fertilisers), ii) produced as agricultural wastes (e.g. animal manures) and iii) produced by natural processes in the course of agricultural activities (e.g. soil erosion).
- b) establish maximum ceilings or standards for acceptable levels of pollution. This is commonly done by setting environmental quality standards for the environmental resource receiving the pollutant (e.g. drinking water standards for nitrates and pesticides).

It is important to note that the statutory regulation of agricultural pollution is not simply a technical and legislative issue – often the introduction of new regulations requires the re-orientation of traditional attitudes within the farming community in order to accept the sanctions and controls imposed upon their businesses. This is a particular issue where agricultural pollution problems have traditionally been neglected or overlooked – for example, because of the encouragement of maximum food production. It is essential under circumstances such as these that regulatory instruments which impose a new “*moral authority*” upon farmers are introduced in combination with the provision of appropriate information and advice, as well as financial incentives such as capital grants, in order to gain the support of farmers rather than risk alienating them.

2. **Advisory/Informative Instruments** - these are based upon “communication”, including the provision of information and advice as well as the opportunity for discussion and negotiation between farmers, policy-makers and other stakeholder groups. These instruments are used extensively in many areas of environmental policy and according to the OECD their goal is to achieve the delivery of policy objectives via the simple process of “*enlightened self-interest*”. For example, farmers are often advised that the use of an alternative practice is not only better for the environment, but can also save on agrochemical inputs and therefore improve the profitability of their farm businesses.

Advisory/Informative instruments are particularly important for controlling agricultural pollution because of the need for farmers to use information, management ability and ecological understanding

to replace or rationalise the use of agro-chemical inputs and/or other management practices – indeed, sustainable agriculture is often described as “*information intensive, rather than chemical intensive*”.

3. **Economic Instruments** - these involve the use of financial *incentives* and *disincentives* to encourage or discourage the adoption or continuation of specific agricultural practices.

a) Financial Incentives

Financial incentives are potentially very powerful instruments for modifying the behaviour of farmers - they are flexible, easily-targeted and can be linked to the implementation of both regulatory and communicative policy instruments to help achieve specific objectives. Furthermore they are unlikely to require any re-orientation of farmers' attitudes.

Examples of financial incentives include compensatory payments, capital grants, credit or low-interest loans, as well as the market advantage and/or premium prices obtained for certified and labelled products from environmentally-friendly farming systems.

For example, the use of compensatory payments to encourage environmentally-friendly farming methods is well established within EU agri-environment programmes. These encourage farmers to enter into a long-term “management agreement” (a legal contract) whereby they agree to follow an agreed course of action to produce specified environmental benefits in return for an annual payment (usually an area payment paid per hectare).

Capital grants normally involve one-off payments for investment in specific tasks (e.g. tree-planting) or facilities (e.g. waste handling and storage) that have environmental benefits. However, unless grant rates are 100% (i.e. none of the cost is shared by the farmers) their uptake can be limited by the reluctance of farmers to meet the additional costs over and above the grant, especially where these are perceived as producing little personal benefit.

Conventional production subsidies (i.e. financial support payments) to farmers can also be harnessed to environmentally-friendly practices through a system of “cross-compliance”. This requires that all farmers who benefit from government support payments must in return undertake specified activities which benefit the environment.

Obviously, the success of the financial incentives outlined above at modifying the behaviour of farmers depends very much upon the ability and willingness of national governments (and ultimately tax-payers) to pay for the environmental benefits which are accrued.

However, other incentives can be pursued more directly from the general public as consumers. Environmentally-friendly practices can be encouraged through the adoption of production methods according to prescribed environmental standards or codes of practice which have a strong 'market-linkage'. Accredited products with recognisable labels often have a market advantage and in some cases (e.g. organic food) may attract premium prices which significant numbers of consumers are willing to pay.

b) Financial Disincentives

Financial disincentives, such as penalties and fines for non-compliance with legislation, are commonly designed “...to confront the user (or polluter) of the environment with the full economic consequences of his/her actions”¹.

This approach is derived from the so-called 'Polluter-Pays Principle' whereby those responsible for causing the negative externalities generated by the harmful effects of economic activity upon the environment (mainly, but not exclusively, by pollution) are forced to bear the cost of this damage and/or the costs incurred in controlling the damage. The "Polluter-Pays Principle" is well established in environmental policy-making² and may, for example, be applied in agriculture via the government

¹ Scheele, M. (1997). The Decomposition Approach: Spatially Differentiated Analysis and Implementation of Environmental Strategies. **In:** *Controlling Mineral Emissions in European Agriculture* (Eds. Romstad, E., Simonsen, J. and Vatn, A.), 41-58. CAB International, Wallingford.

² OECD (1975). *The Polluter-Pays Principle: Definition, Analysis and Implementation*. Organisation for Economic Co-operation and Development, Paris.

imposition of taxes on fertilisers and pesticides. In theory this means that the external costs of using these agro-chemicals (e.g. cost of water treatment by water supply companies) are 'internalised' to become part of the normal business costs incurred by farmers, thereby encouraging the adoption of less polluting practices/technologies.

However, studies suggest that if significant reductions in the use of these inputs are to be made then very high taxes (e.g. well in excess of 200%) are required. No policy-makers have yet attempted to introduce such drastic "supply control" taxes, preferring instead to impose relatively small revenue-raising "environmental" taxes that generate funds for investment in research or extension services. Although this approach does risk enshrining the polluter's right to carry on polluting by encouraging polluters to pay the tax as an acceptable additional cost rather than to alter their practices.

A further criticism of taxing agrochemical inputs as means of pollution control is that the incidence of pollution on individual farms is influenced by a great many other factors and husbandry practices than simply the level of purchased inputs. Equally there is no incentive for farmers to adopt 'good agricultural practice' if they will continue to be penalised on the same basis as other farmers who ignore good practice.

A better approach (assuming an appropriate mechanism can be found) may be to impose a tax or levy payment upon pollution itself. The Dutch government, for example, implemented legislation in 1987-88 that included the introduction of a levy system that charges farmers for producing surplus manure on their farms. Although innovative, the success of a system such as this depends upon:

- the participating farmers being sufficiently competent in the collection, management and processing of relevant data
- farmers having sufficient income/motivation to afford the extra time and expense involved in monitoring manure production on their farms
- the government having the means to monitor farmers' activities and to detect and punish violations

At present, most emphasis on economic instruments within agricultural pollution control policy appears to be on the provision of financial incentives such as modifying land use via long-term management agreements, rather than the imposition of financial disincentives.

Implementation Structure

This is the organisational arrangement within which policy strategies are implemented. The 'actors' within this structure may include farmers and their representatives organisations (e.g. farmers' unions), governmental agencies, sector authorities, private interest groups and even the general public, while their success at implementing policy will depend upon:

- the way in which they organise themselves to solve problems of policy implementation
- their degree of power and authority, and
- the level of resources they are allocated

The implementation structure will obviously vary depending upon the policy strategies and instruments adopted. For example, regulatory instruments tend to be associated with centralised decision-making and 'top-down' policy implementation. Advisory/informative instruments on the other hand are much more flexible and offer the potential to encourage decentralised decision-making and 'bottom-up' policy implementation by:

- a) developing common knowledge and understanding between the policy makers and individual farmers, and;
- b) leaving the final decisions on specific management practices and actions to the individual farmer.

As a general principle, environmental policy strategies and their implementation structures should be developed with a view towards minimising as much as possible the public costs of administration, monitoring and enforcement.

One low-cost approach to implementing environmental policy which is increasingly favoured in some countries is the government funding of voluntary and community assistance programmes to build the 'capacity' of local people to address local environmental problems with locally-developed solutions.

EU Policy Context

This policy review is undertaken during a period of great change in the Danube River Basin (DRB) with Hungary, Czech Republic, Slovakia and Slovenia in the final stages of preparation for accession to the EU in 2004, followed by Bulgaria and Romania preparing for EU accession in 2007 or later³. The policy-making context for agricultural pollution control in the DRB is therefore undergoing significant change and preparation for joining the EU is currently a major driving force for the reform of agricultural pollution control policies in the 6 countries mentioned.

This includes the requirement to:

- harmonise national legislation with EU regulatory instruments
- prepare rural development measures for EU co-financing
- develop the principle of “environmental cross compliance” – in other words, to set certain environmental standards that farmers must meet in order to be eligible for government support

However, this policy context is not static since the main policy instrument for supporting the EU agricultural sector – the so-called Common Agricultural Policy (CAP) - continues to undergo a series of radical reforms that will impact upon all farmers in the EU, including those in the new Member States of the DRB.

The first major reform of the CAP was according to the so-called ‘Agenda 2000’ proposals published by the European Commission in 1997 and took effect for the programming period of 2000 – 2006. The Agenda 2000 proposals were an important development because they:

- a) introduced a coherent rural development framework to the CAP for the first time – the so-called “second pillar” of the CAP as defined now by the Rural Development Regulation No. 1257/1999 and its implementing regulation⁴, and
- b) shifted funding for Member States from the traditional market support measures in the “first pillar” of the CAP to a range of rural development measures in the new “second pillar” including support for:
 - investment in agricultural holdings
 - setting up young farmers
 - training
 - early retirement
 - less favoured areas and area with environmental restrictions
 - agri-environment
 - and forestry

In June 2003, EU agriculture ministers agreed a further package of fundamental reforms following the “Mid-term Review” of the CAP that it is claimed will completely change the way that the EU supports its farm sector. The new CAP will be geared towards consumers and taxpayers, while encouraging EU farmers to produce what the market wants. In future, the majority of subsidies will be paid independently from the volume of production and will be linked to the respect of environmental and other standards. More money will also be made available to support farmers joining environmental programmes by reducing the direct payments that are made for bigger farms.

³ Croatia is also preparing its preliminary application for EU membership

⁴ Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the framework, taking account of experience gained using European Agricultural Guidance and Guarantee Fund (EAGGF) and its implementing regulation Commission Regulation (EC) No 445/2002 of 26 February 2002 laying down detailed rules for the application of Council Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF)

The key elements of the new, reformed CAP that will enter into force during 2004 and 2005 are as follows⁵:

- a single farm payment for EU farmers that is independent from production and linked ("cross-compliance") with defined environmental, food safety and animal welfare standards, as well as the requirement to keep all farmland in good agricultural and environmental condition
- a strengthened rural development policy with more EU money and measures to promote environmentally-friendly farming methods, as well as a new measure specifically intended to help farmers to meet EU production standards
- a reduction in direct payments ("modulation") for bigger farms to finance the new rural development policy

Special transitional arrangements have been made for the integration of the new Member States into the CAP in 2004, including the progressive introduction of direct payments over a period of 10 years and a significant increase in funds available for rural development at a co-financing rate of 80% from the EU.

SAPARD

In 1999, a Special Accession Programme for Agriculture and Rural Development (SAPARD)⁶ was introduced to assist in the restructuring of the agricultural sectors of the 10 candidate countries from central and eastern Europe that were preparing to join the EU. A total of EUR 520 million per year was been allocated to SAPARD until 2006 and distributed to candidate countries on the basis of farming population, agricultural area, GDP per capita in purchasing power, and the specific territorial situation in each country. SAPARD funding aimed both to support preparation of the necessary EU legislation by the candidate countries in the area of the CAP and rural development and to build-up the capacity of the candidate countries' administrations to implement this legislation prior to their entry into the EU. As such it offered the candidate countries the possibility of funding projects in a number of areas similar to those funded in Member States under the Rural Development Regulation – plus some additional areas such as the establishment and updating of land registers. After 1 May, 2004, it remains of most significance to Romania and Bulgaria.

Harmonisation of National Legislation with EU Regulatory Instruments

It is estimated that about 70% of environmental legislation currently operating in EU Member States are derived from EU legislation. Countries preparing to join the EU have faced (and continue to face) the huge task of harmonising their national legislation with the complex range of EU regulatory instruments.

Table 1 presents a summary of the legislation relevant to reducing the risk and impact of agricultural pollution by encouraging the responsible use of pesticides, improved management of nutrients and avoidance of point source pollution.

⁵ For further information on the key elements of the CAP reforms agreed in July 2003 see:
http://europa.eu.int/comm/agriculture/mtr/index_en.htm

⁶ Council Regulation (EC) No 1268/1999 of 21 June 1999 on Community support for pre-accession measures for agriculture and rural development in the applicant countries of central and eastern Europe in the pre-accession period, OJ L 161, 26.6.1999

Table 1: Summary of EU Legislation Relevant to Agricultural Pollution Control

Issue	Title of Legislation	Obligations
Responsible Use of Pesticides	<i>Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community</i>	<ul style="list-style-type: none"> • The Directive sets a framework for the elimination of reduction of pollution of inland, coastal and territorial waters by particularly dangerous substances. It divides 129 dangerous substances into two lists. List I contains those substances most hazardous with respect to persistence, toxicity and tendency to bio-accumulate. List II contains substances which are still identified as hazardous but to a lesser extent than those on list I. • The Directive requires Member States to eliminate pollution by List I substances and reduce pollution by List II substances. A large number of pesticide Active Ingredients used in agricultural pesticides and herbicides are included on the Lists.
	<i>Directive 79/117/EEC prohibiting the placing on the market and use of plant protection products containing certain active ingredients</i>	<ul style="list-style-type: none"> • Directive 79/117 - the 'Prohibition Directive' - bans or restricts the use of pesticides containing certain active ingredients and to ensure that those that are marketed are of a specified quality and appropriately classified, packaged and labelled. • The Directive prohibits all farmers' use of those substances that are listed in the Annex and also to require specified quality standards to be met for other products listed in the Annex.
	<i>Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances (the Groundwater Directive)</i>	<ul style="list-style-type: none"> • The Groundwater Directive establishes a framework for the protection of EU groundwater by prohibiting discharge to ground water of the most detrimental substances including pesticides. • It is intended to reduce the amount of pesticides reaching drinking water and thus is not primarily environmental legislation. However, insofar as the intention is to limit or largely exclude pesticides from water, this Directive contributes to meeting environmental objectives by reducing the environmental burden of pesticides. • The Directive places mandatory obligations on farmers relating to disposal of pesticide waste (including washing water), implemented in legislation described below. There are no other mandatory obligations on farmers, rather the obligation is on member states' to introduce sufficiently precautionary legislation to exclude pesticides from water.
	<i>Directive 80/778/EEC on the quality of water intended for human consumption (the Drinking Water Directive) – to be replaced by Directive 98/83/EC from 2003</i>	<ul style="list-style-type: none"> • The Drinking Water Directive (80/778) lays down standards for the quality of water intended for drinking or for use in food and drink manufacture in order to protect human health. • The Directive does not impact upon farmers directly, but sets a maximum admissible pesticide residue level (0.1 parts per billion for individual pesticide Active Ingredients and 0.5ppb for all pesticide Active Ingredients) in drinking water that water suppliers must comply with. This requires the use of water treatment in some areas to ensure that the drinking water supplied is acceptable.
	<i>Directive 91/414/EEC concerning the placing of plant protection products on the market</i>	<ul style="list-style-type: none"> • Directive 91/414 - the 'Authorisation Directive' - introduces a Community system to harmonise the authorisation and placing on the market of plant protection products, i.e. pesticides, to protect human health and the environment. • The Directive includes an EU wide common positive list of permitted Active Ingredients. However, the process of review to place substances on this list is not proceeding as planned, and interim measures in Member States currently result in different permitted substances in the Community. • The Directive places no mandatory obligations on farmers. The obligation is on the regulatory system to only approve products that pose an acceptable risk to human health and the environment. Detailed criteria and protocols have been devised. • The legislation also requires Member States to prescribe that pesticides '... must be used properly. Proper use will include compliance with any conditions attached to the product and specified on the label and the application of the 'principles of good plant protection practice, as well as, whenever possible, the principles of integrated control'.

Issue	Title of Legislation	Obligations
	<i>Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive)</i>	<ul style="list-style-type: none"> • The Water Framework Directive (WFD) has the overall environmental objective of achieving 'good water status' throughout the EU by 2010 and for it to be maintained thereafter. It sets out to establish a Community framework for the protection of surface and ground waters across the EU through a common approach, objectives, principals and basic measures. • The WFD establishes the river basin as the primary administrative unit for the purposes of water management. The Directive will have widespread and significant impacts. It brings together much of the existing water legislation into an overall framework establishing broad ecological objectives for water and provides an administrative framework to achieve these. • The Commission (via the OSPAR Convention agreement) has proposed a priority list of substances, which will be targeted with the aim of improving water quality. The pesticides in this list have been selected according to the risk they pose to aquatic life and to human health from polluted waters – this includes alachlor, atrazine, chlorfenvinphos, diuron, endosulfan, lindane, simazine and trifluralin. • This Directive places no direct obligation on farmers, but they influence the standards that must be met by them.
Improved Nutrient Management	<i>Directive 80/778/EEC on the quality of water intended for human consumption (the Drinking Water Directive) – to be replaced by Directive 98/83/EC from 2003</i>	<ul style="list-style-type: none"> • The Drinking Water Directive (80/778) lays down standards for the quality of water intended for drinking or for use in food and drink manufacture in order to protect human health. • The Directive does not impact upon farmers directly, but sets a maximum admissible concentration of nitrate in drinking water supplies of 50 mg per litre that water suppliers must comply with. This requires the use of water treatment in some areas to ensure that the drinking water supplied is acceptable.
	<i>Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources</i>	<ul style="list-style-type: none"> • The objectives of the directive are to ensure that the nitrate concentration in freshwater and groundwater supplies does not exceed the limit of 50 mg NO₃⁻ per litre as imposed by the EU Drinking Water Directive (above) and to control the incidence of eutrophication. • Having set the overall targets, the directive requires individual Member States to draw up their own plans for meeting them, including: <ul style="list-style-type: none"> Drawing up a Code of Good Agricultural Practice Designating zones vulnerable to pollution by nitrates Establishing and implementing Action Programmes within these zones to prevent further nitrate pollution
	<i>Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive)</i>	<ul style="list-style-type: none"> • See under Responsible Use of Pesticides
Avoiding Point Source Pollution	<i>Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances (the Groundwater Directive)</i>	<ul style="list-style-type: none"> • See under Responsible Use of Pesticides
	<i>Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive)</i>	<ul style="list-style-type: none"> • See under Responsible Use of Pesticides

Issue	Title of Legislation	Obligations
	<i>Directive 96/61/EC on Integrated Pollution Prevention and Control (IPCC Directive)</i>	<ul style="list-style-type: none"> • This Directive aims to reduce air and water pollution by applying stronger controls to the regulation of emissions from a broad range of industrial activities, including pig and poultry producers. • All new or substantially altered pig and poultry units housing more than 750 sows, 2,000 finishers over 30 kg or 40,000 birds will require an operating permit that will detail those practices on the unit that may give to polluting emissions, their environmental impact and the 'Best Available Techniques' required to control emissions.

It should be noted however that some of this legislation has so-far had relatively little impact upon reducing agricultural pollution – for example, the EU Nitrates Directive (No. 91/676) has consistently failed to meet its environmental objectives because of both considerable resistance by the EU agricultural community and poor implementation by many Member States⁷. The Nitrates Directive is one of the EU's environmental legislative acts least well complied with by the Member States. In 2001, all EU Member States except Denmark and Sweden were subject to infringement procedures, and in April 2000 9 countries were facing charges before the European Court of Justice due to incomplete implementation of the Nitrate Directive⁸.

There is hope that the rules of the **Water Framework Directive (No. 2000/60)**⁹ will provide a more comprehensive framework for agricultural pollution control, as well assisting the implementation of existing "single issue" legislation such as the Nitrate Directive.

Opportunities for Implementing the Water Framework Directive

The Water Framework Directive (WFD) was adopted in December 2000 and arises out of a long debate concerning the limitations of existing EU water legislation – the existing body of legislation was criticised for being too fragmented, concentrating on specific aspects of environmental quality or specific threats to that quality.

The Directive requires that surface waters (rivers, lakes and coastal waters) and ground waters are to be managed within the context of River Basin Management Plans¹⁰. All waters are to be characterised according to their biological, chemical and hydro-morphological characteristics. These together are to be compared with an assessment of waters unmodified by human activity and classified into different categories of ecological status. All waters are required to meet 'good status', except where specific derogations are applied.

The means to achieve this is through the use of the River Basin Management Plans which should integrate existing EU measures to protect the water environment and identify all remaining human pressures which may result in a failure to achieve 'good status'¹¹. Member States are required to establish a programme of measures in each river basin appropriate to these pressures.

There is now considerable debate within many Member States on what the implications of the WFD will mean for agriculture - in particular, how the Member States (including the 10 new Member States joining the EU in 2004) will use appropriate policy instruments to tackle the significant pressures upon

⁷ European Commission (2002). Implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources: Synthesis from year 2000 Member States reports. Report No. COM(2002) 407 final, Brussels, 17.07.2002

⁸ De Clercq, P.; Sinabell, F.; Hofman, G.; Jarvis, S. C.; Neetson, J. J.; Gertsis, A. C. (2001). Discussion and conclusions. In: DeClercq *et al.* (Ed.): *Nutrient Management Legislation in European Countries*. Wageningen Pers, The Netherlands. 307-327.

⁹ EC Directive No. 2000/60/EC establishing a framework for Community action in the field of water policy, OJ L327 (22.12.2000)

¹⁰ Bloch, H. (2000). EU policy on nutrients emissions: legislation and implementation. In: *Wastewater and EU-Nutrient Guidelines*, pp 52-59. International Water Association, London.

¹¹ Griffiths, M. (2002). The European water framework Directive: an approach to integrated river basin management. *European Water Management Online*, 2002.

water resources that arise from agriculture, including the risk of pollution. A potential problem in many Member States is that unlike other sectors, regulation of the agricultural sector is highly politically sensitive – a situation that arises and results from a range of socio-political and cultural factors. Many governments have therefore tended to avoid the simple imposition of environmental conditions upon farmers – even basic conditions which they would otherwise readily apply, for example, to heavy industry.

The WFD requires that Member States now address this issue and consequently there is much interest in using the policy tools available in the Common Agricultural Policy (CAP) to support and implement the WFD¹², including:

- **CAP Pillar 1 – Market Support Measures** – according to the revised ‘Common Rules’ Regulation (No. 1782/2003)¹³, it will be **obligatory** for all Member States to include specific environmental requirements as a condition for farmers receiving direct support payments from the government (so-called “cross compliance”). Member States were previously reluctant to voluntarily use this policy instrument, but it could now be used for numerous aspects of water pollution control
- **CAP Pillar 2 - Rural Development Measures** – EU co-financed rural development programmes provide funding for several measures that support farmers, rural communities and protection of the natural environment. Some of these measures could directly contribute to the implementation of the WFD and the reduction of agricultural water pollution, particularly “investment in agricultural holdings”, “training” and “agri-environment measures”

Of all the tools of the CAP, agri-environment measures seem the most useful for supporting implementation of the WFD – however, EC rules currently prevent agri-environment payments being made to farmers for complying with the requirements of EC legislation. For example, farmers cannot be offered support payments to encourage them to meet the obligatory reductions in fertiliser application required in designated “nitrate vulnerable zones” by the Nitrate Directive. If this rule is also extended to the WFD then it will significantly limit the use of CAP Pillar 2 funding for encouraging farmers to the wide range of actions on water pollution that are necessary to achieve good ecological status, etc.

No decisions have been made in relation to this issue yet. However, early indications from DG Environment suggest that it would not seek to restrict payments under agri-environment for implementing the WFD as has been done for the Nitrates Directive. The CAP Pillar 2 - Rural Development Measures are discussed in more detail in the next section.

Preparation of EU Agri-environment Measures

As mentioned above, the EU Rural Development Regulation 1257/1999 (the “second pillar” of the CAP) makes provision for Member States to encourage more environmentally-friendly farming methods, including practices and actions that reduce the risk of agricultural pollution, by:

- a) offering grant-aided investment (up to 50%) in agricultural holdings that helps to “...*preserve and improve the natural environment*” – for example, by:
 - purchasing up-to-date equipment to spread manure and apply fertilisers or pesticides in a more environmentally-friendly way
 - improving manure storage facilities (e.g. to meet the requirements of the Nitrate Directive)
- b) training farmers for the “...*application of production practices compatible with the maintenance and enhancement of the landscape and the protection of the environment*” – this includes:
 - training for organic farming or integrated crop management practices
 - training for farming management practices with a specific environmental protection objective

¹² DG Environment (2003) - Working Document on The Water Framework Directive (WFD) and tools within the Common Agricultural Policy (CAP) to support its implementation

¹³ Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers

- c) introducing agri-environment schemes that offer area payments to support “...*agricultural production methods designed to protect the environment and to maintain the countryside*” – this is very important tool for introducing environmentally-friendly farming methods and is discussed in more detail below.

Additionally, following agreement on proposals arising from the recent “mid-term review” of the CAP a new “meeting standards” measure will be introduced to “help farmers adapt to the introduction of demanding standards based on EU legislation not yet included in national legislation concerning the environment, public, animal and plant health, animal welfare and occupational safety”. This will potentially be useful for farmers in the new Member States of the DRB.

Aid will be payable on a flat-rate basis for a maximum period of five years and will be subject to a ceiling per holding in a given year. Support will also be provided to farmers to help them with the costs of using farm advisory services by paying up to a maximum of 80 % of the cost of such services¹⁴.

Agri-environment Measures

EU Member States began implementing the first so-called “agri-environment programmes” in the 1980s and 1990s, and today such programmes cover over 20% of all agricultural land in the EU. These programmes pay farmers to modify their farming practices in order to benefit the environment. This is not a subsidy - it is effectively promoting a form of “alternative economic activity” with farmers paid as “environmental managers” in addition to their usual production of food and other products.

Extensive monitoring of agri-environment programmes in EU Member States shows that they lead to significant benefits for the conservation of valuable semi-natural habitats, biodiversity, landscape, water and soil resources. They are also found to support farm incomes, provide employment and retain traditional rural skills – as well as to underpin a range of other economic activities such as farm tourism and the marketing of quality food products. The potential for agri-environment schemes to contribute to a wide range of rural development objectives, including agricultural pollution control, is recognised by the fact that they are now the **only** compulsory measures for EU Member States to introduce under Regulation 1257/1999.

It will therefore be obligatory upon accession for all new Member States to introduce an EU co-financed agri-environment scheme that offers payments per hectare to farmers (for a minimum of 5 years) who voluntarily change their methods of farming in ways “...*which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic diversity*” – this includes support for a range of actions contributing to the control of agricultural pollution, including the adoption of organic farming

According to Regulation No. 1257/1999 and its implementing regulations:

1. the financial aid offered to farmers who volunteer to join an agri-environment scheme is calculated on the basis of:
 - the **increased net costs** incurred by complying with the requirements of the agri-environment measure (total additional costs minus savings)
 - the **expected loss** of income suffered (using appropriate reference data) by complying with the requirements of the agri-environment measure
2. participating farmers will only be compensated for income foregone and additional costs associated with agri-environmental actions which involve more than usual Good Farming Practice (see 1.2.3 below). Furthermore, farmers must follow standards of Good Farming Practice on the whole of their farm.

While the 4 DRB countries (Czech Republic, Slovakia, Hungary and Slovenia) joining the EU in 2004 will shortly be implementing national agri-environment programmes, 2 DRB countries (Romania and Bulgaria) are unlikely to join the EU until at least 2007. In these latter countries, financial assistance

¹⁴ DG Agriculture (2003). *CAP Reform Summary: Special Edition of the DG Agriculture Newsletter* (July 2003)

is also available for developing and implementing “pilot” agri-environment measures with SAPARD co-funding – the Special Pre-accession Programme for Agriculture and Rural Development.

According to the SAPARD Implementing Regulation No. 1268/1999, EU co-financing support may be provided for all the agri-environment actions described in the Rural Development Regulation No. 1257/1999.

The resources available for agri-environment measures, including those with a positive role in controlling diffuse pollution from agriculture are proposed to increase following the recent “mid-term review” of the CAP. Such a shift would provide a helpful foundation for other measures aimed at pollution abatement. However, there is no certainty that a significant change in farm management will occur. Not only will there be technological and market development affecting management decisions at farm level, there remain considerable uncertainties about the way in which it will be implemented in the Member States.

Developing EU Concepts of “Cross Compliance”

The concept of cross-compliance in agriculture (setting conditions which farmers have to meet in order to be eligible for direct government support) has been growing in importance since the 1970s. After many years of debate it is now also seen as an important policy tool in the EU to help improve standards in farming and protect the environment.

The “Agenda 2000” reform of the CAP introduced cross-compliance for the first time as a key policy instrument for improving the environmental performance of farmers in the EU by:

- a) allowing Member States to attach environmental conditions to the so-called ‘First Pillar’ of the CAP, and;
- b) requiring Member States to define verifiable standards of Good Farming Practice (GFP) for farmers to follow before they could certain receive funds under the Rural Development Regulation (No. 1257/1999) - the so-called ‘Second Pillar’ of the CAP.

Member States showed relatively little interest in the option for voluntary cross-compliance introduced in the original “Agenda 2000” CAP reform. In most countries it was not adopted at all, in others it appears only to have been used to address very specific environmental problems e.g. limits on pesticide use in maize in the Netherlands.

The June 2003 Mid-term CAP reform package however now **obliges** all Member States to have a system of cross compliance in place for all direct support schemes from January 2005 in accordance with the revised ‘Common Rules’ Regulation 1782/2003¹⁵.

“First Pillar” Cross Compliance

Discussions are currently underway in Member States on how to implement the new obligations for “first pillar” cross compliance which require that the full payment of direct support schemes under the CAP must be linked to compliance with rules relating to the management of agricultural land and production activities. If these rules are not met, Member States must withdraw direct aid from farmers – either in whole or in part on the basis of criteria that are “*proportionate, objective and graduated*”.

Most Member States have not yet (December 2003) established a formal position or initiated consultations on “first pillar” cross compliance, but are waiting for clearer guidance from the European Commission in the form of an Implementing Regulation (this is not expected until spring 2004). However, it is clear from Regulation 1782/2003 that there are two general obligations upon Member States:

A. Statutory Management Requirements

There are a total of 18 Directives listed in Annex III of Regulation 1782/2003 on the environment, public, plant and animal health and animal welfare. Member States are required to ensure that all farmers receive a list of statutory management requirements for fulfilling obligations under these

¹⁵ Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers

Directives. Eight of these Directives have to be implemented from 1 January 2005¹⁶, a further seven from 1 January 2006 and the remainder from 1 January 2007.

This will require the development of appropriate verifiable standards, as well on-the-spot checks to ensure compliance with the management requirements. In preparation for drawing up a list of management requirements some Member States are first carrying out an analysis of implementation of the Directives. It is likely that many Member States will take the opportunity to improve existing standards and will be using various lessons learned to further improve the targeting and efficiency of control procedures.

B. Good Agricultural and Environmental Condition

Annex IV of the revised Common Rules Regulation requires Member States to ensure that land is maintained in good agricultural and environmental condition, especially land no longer used for production purposes. Member States must decide how they will define Good Agricultural and Environmental Condition (GAEC) as set out in Annex IV.

Appropriate standards can be set for maintaining GAEC at national or regional level, and must take into 'account 'the specific characteristics of the areas concerned, including soil and climatic condition, existing farming systems, land use, crop rotation, farming practices, and farm structures'. Member States are also required to ensure maintenance of the total area of permanent pasture (2003 baseline).

Various approaches to the implementation of obligatory cross-compliance are expected, since Member States have considerable subsidiarity on many aspects. Although most Member States will probably only require farmers to meet minimum standards set out in the Regulation, it is again expected that some will use this as an opportunity to raise standards in agriculture and may go beyond EU standards. The implications of the revised 'Common Rules' Regulation for the 4 new Member States (Czech Republic, Slovakia, Hungary and Slovenia) in the central DRB are currently unclear, but it is a potentially useful tool for reducing certain pollution risks – although inevitably the true extent of its influence upon reducing pollution will depend upon the commitment and willingness of the new Member States to both implement and effectively police this new policy instrument.

“Second Pillar” Cross Compliance

Another useful tool will be the “verifiable standards of Good Farming Practice (GFP)” that all farmers receiving payments from agri-environment and less-favoured area schemes funded by the Rural Development Regulation - the so-called CAP ‘Second Pillar’ - must comply with across the whole of their farm¹⁷.

Good Farming Practice (GFP) is a relatively new concept to emerge within the EU and its practical implementation is still being tested in many Member States. Obviously the interpretation of what constitutes a “reasonable” standard of farming will vary from country to country, however it is generally assumed that it will consistently involve farmers:

- following relevant existing environmental legislation, and;
- not deliberately damaging or destroying environmental assets, including the pollution of watercourses.

¹⁶ Those relating to the environment are Directives 79/409/79 on conservation of wild birds, 80/68/79 on protection of groundwater, 86/278/86 on sewage sludge, 91/676/91 on nitrates and 92/43/92 on conservation of habitats

¹⁷ Under Section 9 of EC Regulation No. 1750/1999, which sets out the rules for several measures including agri-environment, it is stated that: “Usual good farming practice is the standard of farming which a reasonable farmer would follow in the region concerned.....Member states shall set out verifiable standards in their rural development plans. In any case, these standards shall entail compliance with general mandatory environmental requirements.”

It should be noted that GFP is **not** equivalent to the Code of Good Agricultural Practice (CoGAP) that Member States must introduce in accordance with the requirements of the EU Nitrates Directive 676/91.

GFP is likely to become an even more important element of agricultural policy in future and is very relevant to the concept of Best Agricultural Practice promoted by the ICPDR. However, the verifiable standards of GFP prepared by Member States do vary considerably since there are currently no detailed requirements for the establishment of GFP standards and no common baseline exists across the EU.

As natural, socio-economic and political conditions differ between Member States, the harmonisation of GFP standards at EU level seems both unlikely and impractical – especially with the increasing number of Member States – however clear definitions and guidance on the how Member States should define and implement GFP standards is a high priority.

Methodology Used

Three main sources were used in order to collect relevant information about current agricultural pollution control policies in the central and lower DRB countries, and the level of their implementation:

- existing reviews and publications – including Znaor (1999) who used a similar policy classification to that used in this review¹⁸
- preliminary work by the ICPDR EMIS Expert Group on setting up an inventory of national programmes of measures to reduce the diffuse sources of N and P in DRB;
- a questionnaire survey undertaken by the GFA national experts working in each country of the 11 DRB countries under study.

It quickly became apparent that there was relatively little existing policy information for the DRB countries under study and that most emphasis should be placed upon the questionnaire survey undertaken the GFA national experts. The questionnaire used is included in Annex 1 and the results are included in Annexes 2-12. The objective of the questionnaire was to clearly **classify, describe and analyse** 4 main issues:

1. The **current policy objectives and strategies** of the different Danube River Basin (DRB) countries regarding the control of water pollution caused by agriculture – this includes the control of harmful substances in water that are derived from:
 - agrochemical inputs, such as mineral fertilisers and pesticides, that are used deliberately by farmers to improve crop and animal production
 - farm wastes, such as silage effluent and animal manure, that are produced during usual agricultural activities
 - natural processes, such as soil erosion, that are enhanced by usual agricultural activities

These can occur either by:

- **Point source pollution** –including the regular and large-scale discharges of agricultural waste products directly into a river, lake or other water resource (e.g. the discharge of treated or untreated animal waste into a river from a large pig or poultry-breeding enterprise), or;
- **Diffuse pollution** – this includes pollution from non-point sources (e.g. nitrate losses from cultivated arable land) and multiple “small-scale point sources” (e.g. irregular discharge of relatively small amounts of untreated animal waste into a river from a leaking manure store on a dairy farm)

The national experts were requested to include consider all policies, strategies and projects relating to water pollution by **plant nutrients** (nitrogen and phosphorus), **farm wastes** (manure, slurry, silage effluent etc.), **pesticides** and **soil erosion**.

2. The various **policy instruments and practical measures** that are currently used and/or in preparation for implementation in the DRB countries in order to promote the control of water pollution by agriculture (e.g. to implement national policy objectives, prepare for joining EU or comply with international conventions). This includes:
 - **Regulatory** instruments and measures – these use a country’s legal system to establish norms/standards, regulations, prohibitions, permits etc.
 - **Economic** instruments and measures – these use “money“ as the driving force for changing the management practice of farmers and may involve instruments which are either “incentives” (e.g. subsidies and compensatory payments) or “disincentives” (e.g. fines and penalties)

¹⁸ Znaor, D. (1999). *Regulatory and policy instruments to protect European waters from the consequences of agricultural activities: status of implementation*. ETC Netherlands, report for UN Economic Commission for Europe, Leusden

- **Advisory/informative** instruments and measures – these use information (e.g. publicity campaigns) and advice (e.g. agricultural extension service) to encourage farmers to voluntarily change their farming methods in order to reduce the risk of water pollution.
- **Project-based** instruments and measures – in some countries the agencies most actively working on agricultural pollution control are often operating outside of national policy-making activities and are working instead with some other form of alternative assistance (e.g. from an international donor) within the framework of a project.

The national experts were advised to be clear about the differences between the **policy instruments** that sets the framework for changing agricultural practice, the **practical measures** that are encouraged or required at farm level and the **institutional arrangements** for implementing the various policy instrument and measures.

3. The current development of **existing programmes and projects promoting best agricultural practice** for the reduction of water pollution by agriculture. For the purposes of the questionnaire, Best Agricultural Practice was defined as “those practices and activities that reduce the risk of causing water pollution and that it is reasonable to expect a farmer to do as part of the normal day-to-day management of their agricultural enterprises”.
4. The **overall effectiveness of the “policy mix”** used to control water pollution caused by agriculture. The national experts were advised to be as objective as possible and to cover:
 - a) the **effectiveness of the policy instruments and practical measures** being implemented – do they match the main water pollution problems (nutrients, farm wastes, pesticides and soil erosion)? Do they target all necessary enterprises? Are there any gaps in implementation? What is the level of compliance by farmers? Are the regulations effectively enforced by the responsible authorities?
 - b) the **effectiveness of the institutional arrangements** that are operating – including are the institutions effectively organised to implement policies and practice for agricultural pollution control? Do the relevant institutions have appropriate power and authority? Are sufficient resources allocated to the relevant institutions?

Finally the experts were advised to only review those policies, programmes and projects etc that are directly relevant to the Danube River catchment area in their country. For example – whilst all national legislation is likely to be relevant, any area specific legislation that does not include territory of the Danube River catchment area is not be relevant.

The GFA national experts completed the questionnaires with the assistance of ministry officials, research institutions, advisory services and by referring to relevant national literature and other sources. The national reports received from the experts are included in the Annexes of this review. Inevitably some of the analysis is rather qualitative. The approach and scope of the project still left some issues unquestioned especially because investigation and evaluation of policies remain sensitive issues in some of the countries under study. Furthermore, in some countries the complex political situation and lack of transparency did not allow all possible factors to be brought into the review and analysis.

In order to address the potential sources of error on a country-by-country basis, the results from the national questionnaires were summarised into tables and then grouped into one of three categories according to their status relating to EU accession and the associated stages of policy design and implementation:

EU Acceding Countries	Entering EU in 2004	Czech Republic, Hungary, Slovakia and Slovenia
EU Candidate Countries	Entering EU after 2004	Bulgaria, Romania and Croatia (preparing application to join EU)
Other DRB Countries	No immediate plans for EU entry	Bosnia & Herzegovina, Moldova, Serbia & Montenegro and Ukraine

EU Acceding Countries

Czech Republic – Annex 5

Hungary – Annex 6

Slovakia – Annex 10

Slovenia – Annex 11

Strategies

Of all the middle and lower DRB countries reviewed, only Slovakia was reported to have clearly defined strategies for the control of water pollution caused by agriculture – including pollution caused by nutrients, farm wastes, pesticides and soil erosion. These are defined in the following documents:

- **Concept of Water Management Policy in the Slovak Republic (2001-2005)** addresses the need national strategies to reduce the risk of water pollution caused by agriculture
- **The Concept of Agricultural and Food Policy for the Slovak Republic 2000-2005 (AFP)** defines the 5 year objectives for agriculture and food industry including the conservation of natural resources
- **National Environmental Action Plan 2003** implements the “Strategy, Principles and Priorities of the State Environmental Policy of the Slovak Republic”, set long term and short term priorities for protection of environment in Slovakia for ongoing period from 2003
- **Integrated Waste Management Policy** is part of State Environmental Policy of the Slovak Republic. Waste Management and addresses the need integrated approach to waste management, including the improvement of waste management in agriculture

No clearly defined national strategies for agricultural pollution control were reported in the Czech Republic, Hungary or Slovenia – in other words, there was no evidence of the existence of single policy framework clearing defining the goals for agricultural pollution control and the means of achieving these the goals within a given timeframe (relevant measures, timing, priorities etc.).

This does not imply that agricultural pollution is not recognised as a significant issue since the process of preparing for EU accession requires this and there is evidence of considerable activity relating to agricultural pollution control. A more likely explanation is that:

- there is relatively little experience of developing integrated pollution control strategies, particularly where the issues are divided between policy-makers in agriculture and environment with little tradition of communication or co-operation;
- during the rapid process of transition since the early 1990s policy-makers have understandably tended to focus upon the development of specific policy instruments (often under pressure to meet EU deadlines) with relatively little strategic thinking about the connections between different policy objectives, instruments and measures.

Regulatory Framework

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
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CZECH REPUBLIC

Law No.156/1998 Col. about fertilisers	✓		Pollution by nutrient	Storage of fertilisers
Directive No. 274/1998 Col. About storage and use of fertilisers		✓	Pollution by nutrient	Localities, ways of fertilisers and in addition capacities of manure storage, application: even, not on water logged, frozen, covered by snow, to avoiding pollution of water, keep record per field

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
Water Law No. 254/2001	✓		Framework for other legislation, issuing of polluted water, protection of surface and ground waters, Nitrate Vulnerable Zones framework,	Framework for: effluent issue, Nitrate Vulnerable Zones implementation (fertilisers use and storage)
Government decree No. 103/2003 about vulnerable zones, use and storage of fertilisers and manure, crop rotation and erosion prevention		✓	Water pollution by nitrates	Use (timing, amount – max. 170 kg N/ha, according to locality type, according to type of crops and soils, close to waters, on slopes), storage – locality, capacity, of fertilisers and manure. Farming on slopes concerning erosion.
Law No. 334/1992 about soil protection (amended as 13/1994)	✓		Erosion, decrease of water quality in connection to land use	Land use change could be ordered
Law No. 147/1996 Col. About plant protection (amended No. 409/2000 and 314/2001)		✓	Pollution by pesticides	Approving proper products, machinery (their regular control),
Law on organic farming		✓	Pesticides, nutrients, soil erosion	Avoiding pesticides use, whole system of sensitive farming practices

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Regulation 8./2001. (I.26.) on store, trade and use of fertilisers		✓	Pollution by nutrients	Storage and use of fertilisers
Law on agricultural land LV./1994.	✓		Framework for other legislation	Good Farming Practice, soil protection, soil sampling, nutrient management
Environmental Protection Law No. LIII./1995.	✓		Framework for other legislation,	Framework for: water pollution protection, waste management, etc.
Government decree No. 49/2001 about protection of waters against nitrate pollution (EU Nitrate Directive)		✓	Water pollution by nitrates	Use (timing, amount – max. 170 kg N/ha, according to locality type, according to type of crops and soils, close to waters, on slopes), storage – locality, capacity, of fertilisers and manure. Farming on slopes concerning erosion.
Law No. XXXV./2000. on plant protection		✓	Pollution by pesticides	Approving proper products, machinery (their regular control),
Regulation no. 5/2001 on plant protection activities		✓	Pollution by pesticides	Rules to be applied during plant protection activities
Regulation on organic farming		✓	Pesticides, nutrients, soil erosion	Avoiding pesticides use, whole system of sensitive farming practices

SLOVAKIA

The Water Act 184/2002 Coll. , which establishes basic duties in water management and general protection of ground- and surface waters including aquatic ecosystems -	✓		Pesticide, silage effluent, organic and mineral fertilisers and its liquid parts, Farm waste.	Limits (permission required) and regulations on waste water discharge, land drainage, using dirty water for irrigation in all areas. Limits (permission required) on airplane application of fertilisers and building of large-scale livestock production farms in all areas. Limits/conditions on waste handling from large-scale livestock production farms in all areas. The prohibition of sanitation buildings
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Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
this transposes all important directives of European legislation that include Directives 76/464/EEC, 80/68/EEC, 91/676/EEC, 78/659/EEC				(slaughterhouse), large-scale livestock production farms, airplane application of fertilisers, irrigation of agricultural land over 50 ha in water areas of significant importance. Limits on pasturing practices to avoid soil erosion and surface in water areas of significant importance. Agricultural practices, particularly pasturing, shall consider good status of soil (erosion) and waters in all areas. State authority can order the implementation of special agricultural practices to achieve good status of water in all areas. Recommended implementation of Code of Good Agricultural Practices in all areas: <u>Obligations</u> : limits and prohibition of fertiliser use on timing, soil conditions, slope of terrain, and distance to water flow. Definition of storage conditions of organic fertilisers including silage, and procedures of application of fertilises and manure on agricultural land. <u>Optional</u> : application of crop rotation rules, evaluation of plans for fertiliser use, implementation of measures for water protection against pollution from irrigation water and surface discharge. Action Plans of agricultural practices for vulnerable areas: Limits or prohibition of fertilisers use on timing, climatic conditions, soil type, slope of terrain, and grazing carrying capacity. Conditions or prohibition of storage of organic fertilisers. Evaluation and implementation of Programme for reducing water pollution by harmful and particularly harmful substances
Decree on of protection zones for water resources and measures for water protection 398/2002 Coll.		✓	Nutrients, pesticides. farm waste.	Limits on waste farm storage and use (liquid and hard), building of large-farms, use of pesticides, mineral and organic fertilisers, and irrigation in protection zones of water resources (set up according to environmental conditions on site). Prohibition of waste storage facilities in the I. and II. Protection zone of water resources, and keeping distance from water resources in the III. zone of protection. Prohibition fertilisers and pesticides in first protection zone of water resources, keeping distance from water spring and flows (set up according to environmental conditions on site, usually 50 m from drinking water springs, and 100 m from drinking water reservoirs, 12 m from lakes, streams, rivers).
Decree on qualitative objectives of surface waters and limit values for waste water and particular waters 491/2002 Coll.		✓	Farm waste.	Define rules and limit values of water discharge quality for substances, which constitute a risk to the environment including agricultural waste.
The Waste Act 223/2001 Coll. , which establishes basic duties and responsibilities in	✓		Farm waste.	Farmer is obliged to develop and implement the Waste management Plan in case of overcoming of certain threshold of waste (number of animals), which defines the conditions of handling and storage of the farm

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
waste prevention and waste management. Decree on Storage of Waste in farms.				waste (substances from pesticide processing, silage effluent, organic and mineral fertilisers and its liquid parts) including agrochemicals (in harmony with district and regional waste management plans).
Act on Application of Sludge and Sediments in Soil – adopted in February 2003, in force from July?		✓	Nutrients	Prohibition of sludge and sediments on wet and frozen soil, arable land = fruits and vegetables, over certain threshold of terrain slope and pH, time limit on grasslands for grazing,
The Act on Agricultural Land Conservation 307/1992 Coll. (am. 83/2000 Coll.) , that set duties to protect natural functions of agricultural land. Resolution 531/1994-540 on limits of soil pollution by harmful substances Resolution 152/1996 regulating the rate of compensation for restricted agricultural practices.		✓	Soil erosion, contaminations (nutrients, farm waste), protection of other elements of environment.	Permission on change of land type, ensure general protection of soil and its functions and the prevention against invasive species. Act allowed to establish “special management” for agricultural land that is prone to risk: <ul style="list-style-type: none"> • measures for improvement of water regime and water quality • limits of fertilisers and pesticides • waste treatment measures • revitalisation of agricultural land (conversion of arable land to grasslands) • prohibition of agrotechnologies
The Act on Fertilisers 136/2000 Coll. , that establish conditions for use, storage, introduction and registration of fertilisers.		✓	Nutrients	Limits (rules) and conditions on application and storage of fertilisers. Farmers is allowed to use only registered fertilisers. Fertilisers can not be applied by the way that damage the environment. Prohibition of all fertilisers and manure application in wet (drench), frozen or snow-covered land, and in case of damage of the environment in all areas.
Decree on type, storage and examination of fertilisers 26/2001 Coll		✓	Fertilisers	Lay down the type of fertilisers, storage conditions for solid and liquid fertilisers and its application on agricultural land.
The Act on Plant Treatment 471/2001 Coll. that establish duties in using and handling the plant protection substances.		✓	Pesticides	Rules for application and control of the pesticides use. Farmer is obliged to respect the time and scale of application of pesticide, including the limits in protection zones of water resources.
The Act on Organic Farming 224/1998 Coll. , that lays down rights and obligations for the implementation of organic farming and processing of bioproducts.		✓	Pesticides, nutrients,	Limits or prohibition on pesticides and fertilisers use, crop rotation, in areas of organic farming.
The Act on Nature and Landscape Protection 543/2002 Coll. That set duties for nature protection, rational use of nature	✓		Pesticides, nutrients, farm waste.	Limits on wetland management, change of land type, and air application of pesticides and fertilisers in all areas. Limits on grazing capacity, outdoor keeping of animals and using water places for animals (napajadiel), use of mineral and organic

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
resources and maintenance of typical landscape.				fertilisers, pesticides and silage effluent, storage facilities and plough grasslands areas in protected areas.

SLOVENIA

<i>Water Act</i> (Zakon o vodah; 12.7.2002)	✓		agrochemical inputs (plant nutrients, pesticides); farm wastes	Prohibited fertilisation and use of pesticides and herbicides on the land within the ground plan width 15 m from the water bank for waters of 1 st degree and 5 m from the waters of 2 nd degree.
<i>Environmental Protection Act</i> (OJ RS no. 32/93, 1/96)	✓			no specific reference to agricultural water pollution – demands only monitoring of imissions (inputs) into soil, water etc.
<i>Agriculture Act</i> (OJ RS no. 54/2000, 16.06.2000)	✓		water pollution from agriculture in general – protection of drinking water	- announces the introduction of payments to encourage environment friendly agricultural practices; - describes organic farming and integrated plant production and announces preparation of detailed rules for those
<i>Agricultural Land Act</i> (OJ RS no. 59/96)	✓		(1, 2) a general reference (3) a very short and unspecific reference	(1) demands prevention of pollution of water and agricultural land and prevention of erosion (2) provides possibility to use the tax paid for the change of agricultural land use for encouragement of environment friendly farming (3) demands from the farmer to act as a "good farmer" on the land rented from the State Fund of Agricultural Land
<i>Nature Protection Act</i> (OJ RS no. 56/99)	✓			very unspecific: introduces the possibility of prohibition of farming practices and use of substances (in protected areas) that could negatively influence biodiversity , by special acts on protected area
<i>Phytopharmaceuticals Act</i> (OJ RS no. 11/2001, 16.02.2001)		✓	pesticides	sound use of pesticides: (1) describes the duties of public services in the training of the pesticide users (2) demands certification of pesticide spraying devices before selling and every 2 years of use
<i>Regulation on the input of dangerous substances and plant nutrients into soil, + its changes and amendments</i> (OJ RS no. 68/96)		✓	plant nutrients (mineral fertilizers, manure, slurry; compost);	(1) maximum input of nitrogen from animal fertilizers (manure, slurry...) is 170 kg/ha in the whole area of Slovenia (whole country has been declared environmentally sensitive area); (2) max. input of phosphorous (as P ₂ O ₅) from animal fertilizers is 120 kg/ha; (3) max. input of potassium (as K ₂ O) from animal fertilizers is 120 kg/ha; (4) sets maximum input of nitrogen (kg/ha/year) on water protection zones for different types of crops; (5) obliges farms with exceeding per ha production of nitrogen (from animal breeding) to remove the surpluses adequately; (6) prohibits fertilization in forests, with few very limited exemptions; (7) prohibits the use of manure and slurry on agricultural and other land, specifically for the type of use and soil conditions, in certain periods of year; (8) prohibits the use of mud from water treatment plants and certain types of compost on certain agricultural land, water catchment areas and several other areas; (9) demands from farm holdings to set up an operational programme for the implementation of relevant articles from this Regulation.

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
<i>Regulation on the imission values of the dangerous substances in the soil</i> (OJ RS no. 68/96)	✓	✓	pesticides (by active substances)	input of pesticides limited to specific amounts of active substance (in mg substance per kg of soil)
<i>Ordinance on the operational monitoring of the input of dangerous substances and plant nutrients into soil</i> (OJ RS no. 55/97)		✓	dangerous substances	monitoring only, very general (agriculture only a in a very limited way)
<i>Rules on organic production and processing of agricultural products and food</i> (OJ RS no. 31/01)		✓	agrochemical inputs (plant nutrients, pesticides); soil erosion	Organic farming: prohibits use of chemical pesticides and synthetic mineral fertilizers; demands good agricultural practice
<i>Regulation on the water pollution tax</i> (OJ RS no. 41/95, 44/95, 8/96)		✓	agrochemical inputs (plant nutrients, pesticides);	introduces a tax for water pollution, also from agriculture
<i>Regulation on the emission of substances in the flow off of waste water from animal breeding buildings, + its changes and amendments</i> (OJ RS no. 10/99 and 20. January 1999)		✓	nutrients (nitrogen, phosphorous, potassium)	appropriate removal of the waste water with nutrients exceeding the limits for their use on agricultural land of the farm that produced them, as set by other regulations

Typical comments from national experts on the adequacy of pollution control regulations, including reasons for poor implementation and/or enforcement, in the four EU acceding countries were as follows:

- Low awareness amongst farmers of environmental regulations relevant to their farming activities
- Lack of financial resources for farmers to comply with regulations e.g. to improve manure storage facilities. Recognition of the problems of the high investment costs associated with compliance is often associated with poor enforcement by authorities and the relaxation of penalties
- Lack of compliance checks and controls upon farmers by relevant authorities due to their low inspection capacity arising from lack of staff, poor organisation of resources, limited funds etc.
- Some regulatory requirements are difficult to check and enforce because appropriate control procedures have not been developed – some regulatory requirements upon farmers are considered to be overambitious in the current circumstances of most farms
- Not enough inspectors to control large number of very small farms
- Lack of co-ordination and communication between Ministries and control authorities (although this is improving rapidly)
- There are still some deficiencies in the design of certain regulations, including those developed for EU accession.

Economic Instruments and Measures

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
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CZECH REPUBLIC

Government decree 505/2002 about non-productions functions support - MoA		✓	Nutrients and silt in waters caused by erosion, and pesticides use	Arable land conversion to grassland on slopes, All practices associated to organic farming according EU and Czech rules
Program for Nature and Landscape - MoE		✓	Nutrients and silt in waters caused by erosion	Erosion prevention
Investment support – MoA and SAPARD		✓	Nutrients pollution	Manure storage facilities renewal
Law about fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)
Directive about storage and use of fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)
Government decree about vulnerable zones	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters), soil erosion practices-contour farming etc.
Law about soil protection	✓		Any pollution, heavy soil erosion	Preventing any activities causing soil degradation
Law about plant protection	✓		Pesticides	Proper storage, use only approved machinery and pesticides according to guidelines on product

HUNGARY

Agri-environment measures		✓	Nutrient and pesticides pollution	Environmentally friendly farm management techniques
Government decree about vulnerable zones	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters), soil erosion practices-contour farming etc.
Investment support – MoA and SAPARD		✓	Nutrients pollution	Manure storage facilities renewal
Regulation on fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)
Law about plant protection	✓		Pesticides	Proper storage, use only approved machinery and pesticides according to guidelines on product

SLOVAKIA

The Water Act 184/2002 Coll. , which set penalties in case of violation of regulations on general protection of ground- and surface waters including aquatic ecosystems	✓		Pesticide nutrients, farm waste	Penalties are set in case of violance of Water Act (see chapter above), particularly: Limits on waste water discharge into ground and surface waters in all areas. Limits on airplane application of fertilisers and building of large capacity farms in all areas. The prohibition of sanitation buildings (slaughterhouse), large capacity farms, airplane application of fertilisers in water protection zones. Limits or prohibitions of agricultural practices in protection zones of water resources.
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Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
The Waste Act 223/2001 Coll. , which set penalties for violation of regulations of waste treatment	✓		Farm waste	Penalties for not keeping rules of the manipulation of farm waste according to Waste Management Plan (substances from pesticide processing, silage effluent, organic and mineral fertilisers and its liquid parts), which identify the waste products and how managed.
The Act on Agricultural Land Conservation 307/1992 Coll (am. 83/2000 Coll.) , which set penalties for violation of the rules.	✓		Soil erosion, (nutrients, waste)	Penalties on change the land type, do not implement agricultural practices which ensure general protection of soil and its functions and the prevention against invasive species. Act allowed to establish "special management" for agricultural land that is prone to risk: <ul style="list-style-type: none"> • measures for improvement of water regime and water quality • limits of fertilisers and pesticides • waste treatment measures • revitalisation of agricultural land (conversion of arable land to grasslands) • prohibition of agrotechnologies.
State Fund for protection and revitalisation of agricultural land.		✓	Soil erosion, farm waste.	Improvement of waste management, storage facilities for manure, silage, slurry, and investment into agrotechnologies, measures against soil erosion, revitalization of grasslands. The measures are provided through regular subsidy system which set priorities every year.
Decree on Rural and Agricultural Development Plans 316/2001 (am. 515/2002 and 717/2002) - Agri-environmental programme (pilot areas under the SAPARD)		✓	Nutrients, pesticides, soil erosion	Reduction of fertilisers and pesticides on arable land and on grasslands, maintenance of grasslands, conversion of arable land to grasslands, special measures for wetlands protection, measures against soil erosion (non forest wood vegetation).
The implementation of The Act on Fertilisers 136/2000 Coll.	✓		Nutrients	Penalties for use of unregistered fertilisers, application of fertilisers by the way that damage the environment. Application of all fertilisers and manure application in wet (drench), frozen or snow-covered land.
Act on Nature and Landscape Protection 543/2002 Coll. , that set penalties for violence of the law and provide compensation of limited agricultural practices.	✓	✓	Nutrients, pesticides, silage effluent.	Penalties for not allowed agricultural practices in all areas or in protected areas (application of fertilizers and pesticides, ploughing the grasslands, inappropriate use of wetlands, etc). Compensations for restricted agricultural practices (outside of terms of Act on Soil Conservation) or financial contribution to achieve good status of land that requires implementation of measures outside of obvious land management.
The Act on Organic Farming 224/1998 Coll. , that provide special subsidies for implementation of organic farming according to FAO.		✓	Pesticides, nutrients.	Rewards for limits or prohibition on pesticides and fertilisers use and crop rotation in areas of organic farming.
Programme for support of implementation of environmental measures (mainly water pollution issues)		✓	Water protection and waste management.	The objective of improvement of water pollution is generally defined, however, it provides option for support of agricultural practices to improve water quality.

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
SLOVENIA				
Regulation on SAEP and introduction of direct payments for measures in 2002-2003 (EKO2, EKO 3) – the Slovenian agri-environment programme		✓	pesticides, nutrients, soil erosion	Measures encouraged: (1) Reduction of the negative impact of agriculture on the environment: - reduction of animal density/ha and excessive input of farm wastes into soil - suppress overgrowth of agric. land with forest – cleaning of overgrowth once a year - reduction of erosion in orchards and vineyards by planting/sowing adequate vegetation - maintenance of plant rotation to improve soil characteristics and fertility - greening of the fields in winter - integrated fruit production - integrated viticulture (vine growing) - organic farming (2) Maintenance of natural features, biodiversity, soil fertility and traditional cultural landscape: 8 measures, not directly related to the reduction of pollution but more to the maintenance of extensive and otherwise appropriate agricultural activity to achieve the goals of (2) (3) Protection of the protected zones (nature AND water protection zones): - maintenance of farmed and populated landscape on nature protection areas; - restructuring of animal breeding in the area of large wild animals (bear etc.); - maintenance of birds' habitats - plant cover on water protection zones - introduction of grass cover and of fallow All measures within (3) reduce pollution from agriculture. Obligation for the farmer: to implement the selected measure(s) for 5 years (until 2006).
Local communities: refunding inspection costs		✓	pesticides, nutrients, soil erosion (indirectly)	Organic farming, integrated plant production
Local communities: higher % of grants		✓	pesticides, nutrients, soil erosion (indirectly)	Organic farming (50%) and integrated farming (30%)
Penalty (4.200 – 42.000 EUR); Water Act	✓		plant nutrients and pesticides	use of fertilisers or pesticides on water protection zones
Penalty (630 – 5.100 EUR); Agricultural Land Act	✓		very general reference to pollution	pollution of agricultural land
Penalty (630 – 5.100 EUR); Agricultural Land Act	✓		very general reference to the "good farmer /manager"	good agricultural practice
Penalty (420 – 630 EUR); Phytopharmaceuticals Act	✓		pesticides	misuse / overuse / improper use of pesticides
Penalty (minimum 840); Regulation on the input of plant nutrients and dangerous substances into soil	✓		plant nutrients	violation of the Regulation (see above)

Typical comments from national experts on the adequacy of economic instruments for pollution control regulations, including reasons for poor implementation and/or enforcement, in the four EU acceding countries were as follows:

- Low levels of financial incentives to encourage farmers to make significant changes to their farming systems e.g. to convert to organic farming methods – although more resources will become available following EU accession in May 2004
- Lack of targeting of the limited national resources that are available to provide financial incentives leads to poor utilisation and limited impact
- General lack of financial incentives (e.g. investment grants) to support farmers in the implementation of regulations regarding the improvement of pollution control facilities (e.g. to improve manure storage facilities) – although more resources will become available following EU accession in May 2004
- Lack of capacity to implement financial incentive schemes, although this is changing rapidly with the final stages of preparation for EU accession
- Lack of administrative capacity to fully and effectively implement systems for the control and collection of fines and penalties etc. – also limited funds available for institutional capacity building on this issue
- Lack of trained staff in the design and implementation of effective economic instruments
- Lack of co-ordination and communication between Ministries and control authorities (although this is improving rapidly)
- There are still some deficiencies in the design of certain economic instruments, including those developed for EU accession.

Advisory/Informative Instruments and Measures

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
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CZECH REPUBLIC

Technical assistance by independent advisory service	Yes	Nutrients	Fertiliser application rates
Technical assistance by State advisory service	Yes	Nutrients, erosion	Timing and quantity of fertilizers use, erosion prevention, storage capacities for manure, nutrients balances.
Technical assistance by providers of farm inputs	Yes	Pesticides	To keep rules provided on product label (avoid water in application, mind air drift)
Education and awareness-raising campaigns	Yes	Nitrates in vulnerable zones (nutrients), farm waste	Keep manure storage capacities, fertilisers application rules (no autumn application of artificial fertilisers etc.), nutrients balances calculations etc.
Demonstration farms	No		
Learning by sharing of ideas among the farmers	Yes	Nutrients, soil erosion	BAP
Publications and other information materials	Yes	Pesticides, fertilisers use,	Sensitive pesticides and fertilisers use (close to waters etc.), reduction of application rates, the most economic use etc.
Training	Yes	Nutrients, farm waste	Application rates, nutrients management according to site

HUNGARY

Technical assistance by independent advisory service	Yes	Nutrients	Fertilisers application rates
Technical assistance by providers of farm inputs	Yes	Pesticides	To keep rules provided on product label (avoid water in application, mind air drift)
Demonstration farms	Yes	Pesticides, nutrients	Part of the National Agri-environment Programme, environmentally sound techniques,

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
			integrated pest management, organic farming, nutrient management, erosion control, etc.
Publications and other information materials	Yes	Pesticides, fertilisers use,	Sensitive pesticides and fertilisers use (close to waters etc.), reduction of application rates, the most economic use etc.
Training	Yes	Nutrients, farm waste	Application rates, nutrients management according to site
Technical assistance by independent advisory service	Yes	Nutrients	Fertilisers application rates

SLOVAKIA

Technical assistance by independent advisory service	Yes	Pesticides, nutrients	Organic farming – general rules.
Technical assistance by State advisory service	Yes	Pesticides, nutrients	Environmental Friendly Agriculture, protection of water sources (seminars, excursions - mainly to Western Europe). Best Agricultural Practices to prevent water pollution (seminars). Advisory and consulting on contamination of soil and water due to agricultural practices and soil erosion (seminars).
Technical assistance by providers of farm inputs	No		
Education and awareness-raising campaigns	No		
Demonstration farms	No		
Learning by sharing of ideas among the farmers	No		
Publications and other information materials	Yes		Main relevant publications: Ecological Farming Code of Good Agricultural Practices – water, fertilizers, soil (see below). Water in threat from agricultural production.
Training	Yes	General environmental issues	Environmental Friendly Agriculture, water sources protection/distance studies, seminars.

SLOVENIA

Technical assistance by independent advisory service	Yes	Pesticides, nutrients, erosion	encourage organic farming
Technical assistance by State advisory service	Yes	Pesticides, nutrients, erosion	encourage: integrated plant production; organic farming;
Technical assistance by providers of farm inputs	Yes	Pesticides, nutrients	encourage: less environment-damaging pesticides
Education and awareness-raising campaigns	Yes	general	encourage farmers to enter Slovenian agri-environment programme
Demonstration farms	No		
Learning by sharing of ideas among the farmers	Yes	Pesticides, nutrients, erosion - indirectly	organic farming, integrated plant production
Publications and other information materials	Yes	Pesticides, nutrients, erosion	good practice of fertilization; good agricultural practice; organic farming, integrated plant production;
Training	Yes	Pesticides	integrated plant production; organic farming; proper use and application of pesticides;
Information / awareness raising campaign by City Community of Ljubljana	Yes	Pesticides, nutrients	discourage excessive use of pesticides and fertilizers

Comments from national experts on the adequacy of advisory/informative instruments and measures, including reasons for poor implementation, in the four EU acceding countries were as follows:

- independent agricultural advisors are more focused upon providing agronomic and economic advice to farmers for improving productivity and profitability – there is little interest in providing advice on environmental protection
- many advisers remain sceptical about the agronomic potential of organic and integrated farming systems, plus they have no knowledge of the environmental benefits
- much advice is provided to farmers by pesticide retailers – they have no interest in reducing the risk of pollution or promoting more environmentally-friendly farming systems. Open days etc. organised by them are more focussed upon production than environment
- there are not enough advisers to provide full and effective advice to all farmers
- most small-scale farmers cannot afford to pay for advice or information
- the qualifications and experience of advisers should be broadened and extended
- there are very few new or updated advisory materials/publications on environmental protection being produced for farmers. When new materials are produced they are not printed in sufficient quantities and are quickly unavailable to the majority of farmers
- the availability of relevant advisers (e.g. for organic farming) varies from region-to-region so that information and technical assistance on more environmentally-friendly farming methods is not evenly distributed
- extension services and advisers have poor co-operation with the Ministry of Environment and limited access to relevant information on environmental protection
- there are no advisory or information instruments specifically focused on protecting water from agriculture. Advisory institutions provide only general information on environmentally friendly agriculture that sometimes touch water pollution issue
- due to lack of finances, as well as poor management, the code of Good Farming Practices and other relevant publications are inefficiently advertised and produced only in limited copies
- training activities which are provided tend to be irregular and limited in geographical coverage
- the limited training which is available on the environmental aspects of agriculture tends to be too general for practical farmers and focussed more upon the “expert” public than on farmers. There are also concerns about the quality of training offered
- there is great potential for involvement of farmers organisations etc. in the promotion of more environmentally-friendly farming methods, but relatively little activity at present

Project-Based Instruments and Measures

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
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CZECH REPUBLIC

No projects aimed in changes of farming practices in Danube river basin			
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HUNGARY

No projects aimed in changes of farming practices in Danube river basin			
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Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
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SLOVAKIA

Regional Environmental Management Plan for Hron River Basin (SAZP)	Small	Farm waste, Erosion	Policy recommendations for improving the soil erosion and farm waste management (very general).
Regional Environmental Accession Project (Phare) – Water protection against pollution by nutrients from agricultural production	Small	Nutrients, pesticides, farm waste.	Development of Code of Good Agricultural Practices – Water focused on prevention of water pollution from agriculture. Assistance on implementation of Directive 91/676EEC on water protection against pollution from agriculture.
Restoration and Management of the Species Rich Meadows in Morava River Floodplain	25 000 Euro	Nutrients, pesticides.	Transformation of arable land into grasslands, management of grasslands in river basin.
Remediation of Polluted Soil and Groundwater	Small	Nutrients, pesticides, farm waste	Evaluation of methodology for identification of potential water pollution resources, risk assessment analyses and prioritizing and identification of adequate measures to minimize water pollution.
Research on quality of drinking water and environmental aspects of flows.	Small	Erosion, nutrients, pesticides	Research project addresses the contribution of agriculture to water pollution due to inappropriate use of agrochemicals and soil erosion.
Consultancy in harmonisation of sectoral policies and capacity building in the field of water management and water protection.	Small	Erosion, nutrients, pesticides, farm waste	Aspects of implementation of Water Framework Directive in Slovakia and integrated management of river basins with focus on water quality.

SLOVENIA

1. a) Integrated viticulture (<i>Integrirana pridelava grozdja, predelava, prodaja in promocija vina</i>) b) Sustainable vegetable and herb production (<i>Naravi prijazna proizvodnja vrtnin in zdravih zelišč</i>)	?	Pesticides, plant nutrients	(a) integrated plant production (b) less chemical inputs-intensive farming
2. Organic farming and inspection (<i>Ekološko kmetijstvo in kontrola ekoloških kmetij</i>)	?	All	organic farming
3. Farming on water protection zones and protection of drinking water (<i>Kmetovanje na vodovarstvenih območjih in zaščita pitne vode</i>)	?	Pesticides, plant nutrients, farm waste	green plant cover in winter; N-fertilisation on the basis of N-min analyses; control of organic fertilisation; reduction of pesticide use;
4. Conversion of farms in City Municipality of Ljubljana to Organic Farming	?	All	organic farming
5. Evidence of Water Polluters in Pomurje Region	4,160	General	less chemical inputs-intensive farming
6. Fertilization of Vegetables with Nitrates as an Ecological Problem	4,800	Nitrates	less chemical inputs-intensive farming
7. Water Pollution and Water Protection in Municipality Šentilj	5,000	General	less chemical inputs-intensive farming
8. Decreasing Negative Impacts of Agriculture for the Water Quality in Dreta River Basin	3.203	General	less chemical inputs-intensive farming

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
9. Sanitation of the Quality of Underground Water as a Source of Drinking Water and Strengthening of the Public Participation Action plan involves further activity: <ul style="list-style-type: none"> Underground water monitoring Preparing the project for building a lysimeter Building the measurements shaft for lysimeter Advising to the farmers Providing information for the public 	15,000	Pesticides and their metabolites (aldrine, atrazine, simazine, etc.) Fertilizers (nitrogen concentration)	organic farming, integrated plant production
10. Local Agenda 21: Programme for Environment Protection in The City Municipality of Maribor	?	All water and soil pollution Soil erosion problems	organic farming; integrated plant production; maintenance of green covering during winter (prevention of erosion and nitrogen leaking); sound management of manure; a balanced input of nitrogen and other plant nutrients into soil; point source pollution

Project activities in the EU acceding countries have clearly become more focused upon applied research relating to water pollution from agricultural sources, rather than the large-scale investment-type projects found in other DRB countries. This is largely due to the fact that the EU acceding countries are no longer targeted by donors, such as the EU, for such projects. Instead technical assistance has come to focus upon capacity building for policy development and implementation, including building stronger links again between research and policy-making.

Promotion of Best Agricultural Practice

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion
Yes	Yes	✓	✓	✓	✓
Description	These are more like "Verifiable standards", because these are supposed to be controllable, simple and not numerous (will become even more simple in RDP). One of the reasons is there are enough standards already in legislation.				
How is information available to farmers?	Published annually and attached to application form for support				
Are there any special projects or programmes for promoting GAP/BAP?	Only in case of Code of Good Farming Practice towards nitrates there is massive campaign (web pages, training, seminars etc.)				

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion

HUNGARY	No	No	-	-	-	-
Description	Concept of good agricultural/farming practice is planned to be introduced as part of EU co-funded agri-environment schemes from 2004 under Rural Development Plan					
How is information available to farmers?	-					
Are there any special projects or programmes for promoting GAP/BAP?	-					

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion

SLOVAKIA	Yes	Yes	✓	✓	✓	✓
Description	<p>Elaboration of the Code of Good Agricultural Practices is part of the Strategy for Implementation of Nitrate Directive 91/676/EEC -protection of waters against nutrients from agricultural resources. So far, the Code does not have legislative obligation. Since 2004, it is supposed to be obligatory for area of agri-environmental schemes, less favourable areas and vulnerable zones. A draft report titled Code of Good Agricultural Practice for the Protection of Water Resources was already produced. This comprehensive document deals with pollution from nitrates and all other types of pollution arising from agricultural activities, including the following areas:</p> <ul style="list-style-type: none"> • Rules for storage of solid manure, slurry, silage effluent, dirty waters (evaluation of storage capacity according to animal production, etc.). • Rules for application of organic and mineral fertilisers to soil (time, maximum dose, measures for application, inappropriate weather or soil conditions for applying fertilisers prohibition in the first protection zone of water resources, etc.) • The construction of new facilities (prohibition in first and second protection zone of water resources, buffer strips to observe near water courses and other water bodies). • Appropriate irrigation practices. • Animal production - technical requirement for in door keeping facilities, limits on grazing capacity (number of animals per hectare), and conditions for pasturing. • Appropriate soil cultivation practices. 					
How is information available to farmers?	Published in brochure					
Are there any special projects or programmes for promoting GAP/BAP?	Strategy for implementation of Nitrate Directive 91/676/EEC -protection of waters against nutrients from agricultural resources					

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion

SLOVENIA	Yes	Yes	✓	✓	✓	✓
Description	<p>The MAFF document titled "<i>Principles of a good agricultural practice and a good farmer</i>" are composed of two chapters that refer to the previously published documents (different Guidelines, Regulations etc.) that have been published in the Official Journal of the Rep. Slovenia or by the MAFF. This is a relatively short document (3 pages) that has been published by the MESP as a booklet.</p> <p>Besides from issuing the booklet on good agricultural practice mentioned above, the "<i>Principles</i>" are not specially promoted. In the introductory paragraph, the document states that "...in a considerable extent, these principles are already a part of established practice on good Slovenian farms...". The current status of good agricultural practice</p>					

	<p>respectively this document is rather worrying. The responsibility for its contents and implementation is shared by several ministries (Health, Environment, Agriculture) and up to now it has not find its proper place in the agricultural practice.</p> <p>The first chapter "<i>Principles of a good agricultural practice</i>" deals with:</p> <p>Fertilization. This chapter refers to the "<i>Guidelines for good agricultural practice in fertilization</i>" (Official Journal of the Rep. Slovenia 34/00). Contents: to ensure a maximum uptake of nutrients by plants and minimum loss; to fertilize accordingly to the needs of individual crops; to respect water protection acts; different suggestions regarding the use, storage etc. of manure and slurry; a yearly fertilization plan according to the soil analysis (the later to be repeated every 5 years).</p> <p>Plant protection. This chapter refers to the <i>Principles of good agricultural practice in plant protection</i> (Ministry of Agriculture, Forestry and Food, 2000). Contents: optimisation of cultivation (time, hygiene, fertilisation, other technology etc); use of resistant varieties; priority to non-chemical pest treatment; use of appropriate and registered pesticide; consider previous experiences and forecasts of the plant protection services; different measures to prevent occurrence of resistance in pests and to reduce the quantities of pesticides used; need for training on the use of pesticides; use of faultless and regularly checked spraying devices. The users must keep records on the use of pesticides.</p> <p>The second chapter is titled "<i>Principles of a good farmer</i>": This chapter refers to the <i>Law on Agricultural Land</i> (OJ RS 59/96) that requires from the owner, tenant or any other user of agricultural land to farm the land as a good farmer, adjusting agricultural production to the environmental and soil conditions and preventing erosion, pollution and ensuring a durable fertility of the soil. The criteria for a good farmer are set in the <i>Guidelines for judging the appropriateness of the farmer's practice</i> (OJ RS 29/86) that are the reference for the contents of the principles</p>
How is information available to farmers?	A small booklet on good agricultural practice has been published by the Ministry of Environment and Spatial Planning. The booklet is not available anymore.
Are there any special projects or programmes for promoting GAP/BAP?	No

Policy Mix

* Where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measures	Pollution Issue	Policy Instruments Used				Potential to Reduce Pollution	Effectiveness in Reducing Pollution (average score)*
		Reg	Econ	Adv	Proj		

CZECH REPUBLIC

<ul style="list-style-type: none"> nutrient and IPM manure storage organic farming cleaning of pesticides dump Manure/fertilizers storage and application, arable to grassland permits, permits for waste water discharge,	Nutrients, farm waste erosion	√	√	√		High	2
Pesticides storage and use	Pesticides	√		√		High	2
Waste management plans	Waste	√				High	1
Action plan for NVZs	Nutrients, waste	√		√		High	3 (will be implemented)
Pesticides, fertilisers limits in water/nature protected areas	Pesticide nutrients	√				High	1
Organic farming	Pesticides erosion,		√	√		High	1

Practical On-farm Measures	Pollution Issue	Policy Instruments Used				Potential to Reduce Pollution	Effectiveness in Reducing Pollution (average score)*
		Reg	Econ	Adv	Proj		
	nutrients						

HUNGARY

Manure and fertilisers storage and application, limits in protected areas	Nutrients	√	√	√		High	2
Erosion prevention	Erosion		√			High	2
Pesticides use (rates, sound methods, storage), machinery approval, limits in protected areas	Pesticides	√	√	√		High	1
Arable conversion to grassland	Erosion nutrients	√				High	2
Organic farming	Nutrients, pesticides erosion	√	√	√		High	1

SLOVAKIA

Development limited, fertilisers/ pesticides application limits in water and nature protected areas + buffer strips along these waters, not plough the grass, pasture, drainage and irrigation limited,	Farm waste, pesticides nutrients, erosion	√	√			High	2
Organic farming	Pesticides fertilisers		√			High	2
Fertilisers/pesticides use, arable land to grassland, erosion prevention, wetland/grassland management	Farm waste, pesticides nutrients		√			High	3 (will be implemented)
Action plan for NVZs	Nutrients	√				High	3 (to be implemented)
Storage and use of fertilisers and farm waste	Nutrients, farm waste		√			High	2
Permits for waste water discharge	Waste	√	√			Moderate	2
Permits/limits on airplane application of fertilisers in key water areas	Nutrients	√	√			Moderate	2
Erosion prevention measures, grassland renewal	Erosion, nutrients		√			High	2
On vulnerable soils is regulated: fertilisers/pesticides use, waste treatment, arable to grass	Pesticides nutrients, waste	√	√			Moderate	3
Waste management planning required	Farm waste	√	√			Moderate	2

SLOVENIA

No pesticides/fertilisers in water protection zones	Pesticides Nutrients	√	√	√		High	2
Timing to nutrients	Nutrients	√	√	√		High	2
ICP	Pesticides Nutrients erosion		√	√		Moderate	2
Organic farming	Pesticides Nutrients erosion		√	√		High	1
Reduction of animal density and waste use on land,	Farm waste		√			Moderate	2
Reduction of erosion in orchards	Erosion		√			Moderate	2

Practical On-farm Measures	Pollution Issue	Policy Instruments Used				Potential to Reduce Pollution	Effectiveness in Reducing Pollution (average score)*
		Reg	Econ	Adv	Proj		
Crop rotation, green cover in water zones, conversion of arable to grassland	Nutrients pesticides erosion		√			Moderate	2

The following specific gaps in policy development and implementation were identified by the national experts:

Czech Republic

- Policy mix is addressing agricultural pollution quite well but some particular issues are missing (for example pesticides application compliance check is not covered well – the institutional role is weak).
- Current policies are more down stream oriented solving incidences and not focused enough to prevention.
- Therefore information transfer (advisory, dissemination etc.) should be developed more. Rewarding instruments are supported by low budget and administrators have not enough strength to impose penalties to economically weak farmers.
- Following policy instruments should be more developed: financial support to help to observe new regulations (manure storage facilities etc.), advisory and dissemination, campaigns etc.

Hungary

- Regulatory framework is regarded as sufficient in the country in addressing the issues in question but it is felt clear lack in enforcement (control etc.).
- Supporting (economic) instruments and advisory/information transfer policy tools are not addressing the issues sufficiently.
- Capacity building is needed to ensure more efficient compliance check. There should be developed more ambitious financial support of investment and advisory, training and awareness rising activities.
- Investment support to renew/newly build manure storage capacities is needed and targeted DRB project is needed too. All above mentioned policy measures need demo and information campaigns.
- There is lack of necessary information about links farming-water quality and other data needed for good decision making.
- There should be started strong awareness rising campaign, training farmers about agri-environmental measures combined with demonstration farms. Agricultural policy should well reflect farm structures in country.

Slovakia

- Current legal framework for water protection is sufficient (in some cases even too ambitious). The weakness is in implementation, compliance check and generally enforcement (lack of staff due to low budget). Controlling bodies carry control only in case of warning/suspicion (not targeted to prevention).
- Soil protection legislation is too vague with no targeted measures.
- The rest of policy instruments is not so well developed. GFP are not enforced enough and economic (rewarding) and information based instruments are developed insufficiently.
- The general lack is regarded in coordination of policies on national level (Ministry of Environment and Ministry of Agriculture) and integration of policies on river basin level.
- The whole policy is not balanced and more developed in regulator instruments than in case of the other instruments like awareness rising, information campaigns, advisory and training, economic instruments etc.
- Institutions are not operating effectively enough.

- The next important goal is to adopt and implement EU Water framework directive.
- Broader inclusion of all relevant stakeholders should be done.

Slovenia

- Policy mix is addressing pollution issues but is failing in implementation. There is not water pollution prevention strategy and there is lack of priorities.
- There is lacking legislation dealing with misuse/overuse of pesticides and plant nutrients only policy instrument dealing with this issue is agri-environmental measure initiating voluntary reduction of fertilisers/pesticides use.
- One of the most important gaps in policies is lack of evaluation – there are not records on frequency of law violation and its consequences etc. Fines are quite rare and not preventing further regulation breach.
- Training and education, awareness rising is generally lacking and should be developed.
- There should be designed national strategies to deal with the water pollution issues and legislation regulating use of pesticides and nutrients. Especially support to build manure storage facilities should be implemented.

EU Candidate Countries

Bulgaria – Annex 3

Croatia – Annex 4

Romania – Annex 8

Strategies

No clearly defined national strategies for agricultural pollution control were reported in Bulgaria, Croatia or Romania – in other words, there was no evidence of the existence of single policy framework clearing defining the goals for agricultural pollution control and the means of achieving these the goals within a given timeframe (relevant measures, timing, priorities etc.).

There are several likely reasons for this:

- in Croatia it was noted that although there is a National Strategy for Environmental Protection, including the control of water pollution, agricultural activities are not identified as an important source of pollution
- there is relatively little experience of developing integrated pollution control strategies, particularly where the issues are divided between policy-makers in agriculture and environment with little tradition of communication or co-operation;
- during the rapid process of transition since the early 1990s policy-makers have understandably tended to focus upon the development of specific policy instruments (often under pressure to meet EU deadlines) with relatively little strategic thinking about the connections between different policy objectives, instruments and measures.

Some progress has been made in Bulgaria and Croatia with the formulation of goals and strategies for reducing pollution from agricultural point and non point sources. For example, while there are no overall strategies for reducing pollution by nutrients and pesticides in Bulgaria, pollution problems associated with farm wastes (manure and slurry) are addressed in the **National Strategy for Protection of the Environment: Action Plan (2000-2006)** with the stated objectives to:

- train farmers in the use of more environmentally-friendly management practices in livestock production
- provide financial assistance for the introduction of more environmentally-friendly production technologies

In Croatia, pollution problems associated with farm wastes (manure and slurry) are also considered a priority within the **National Plan of Environment Activities (NN 46/2002)** with the objectives of improving control over mineral fertilizer consumption, support for ecological agriculture, stronger control over harmful pesticide application and supporting construction of facilities for cleaning liquid manure. Objectives for reducing pesticide use and introducing more integrated crop protection are also included in the **Strategy of Agriculture and Fisheries of the Republic of Croatia (NN 89/2002)**.

Regulatory Framework

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
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BULGARIA

Water act	✓		Nutrients Pesticides Farm wastes	It is prohibited: <ul style="list-style-type: none"> • the storage of pesticides and waste on river banks and in coastal flooded areas • the construction of cattle-breeding farms on river banks and in coastal flooded areas • the disposal of fertilisers and organic
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Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
				<p>manures (including any associated "packages" e.g. fertiliser bags) directly into surface waters or abandoned wells</p> <ul style="list-style-type: none"> the washing-out of "packages, special uniforms and equipment" associated with fertiliser application in any surface water applying fertiliser in the sanitary protection zone around water sources used for drinking water
Act on protection of soil from contamination	✓		It refers to all potential pollutants including the ones from agricultural origin	There are no concrete forbidden farming practices or restrictions.
The act on protection of the agricultural land	✓		Nutrients Pesticides Farm wastes	The usage of pesticides, mineral fertilizers and biologically active ingredients, that have not received toxicological registration from the respected specialized commissions and committees of the Ministry of agriculture and forests, ministry of health and Ministry of waters and environment is prohibited
Act on protection of the agricultural lands			Nutrients Pesticides Farm wastes	Waters that contain dangerous and harmful wastes or substances above the maximum permitted levels could not be used for irrigation purposes
Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources		✓	Nutrients Farm wastes	<p>The good agricultural practice is voluntary applied but the farmers are obliged no to:</p> <ul style="list-style-type: none"> fertilize in belt II of sanitary security area of water sources for water drink supply where the contents of nitrates exceed 35 mg/l; stock organic and mineral fertilizers in the lands adjacent to water sites or rivers or in the lands of coastal flooded river strips; deposit oddments of fertilizers and packages in the superficial waters or abandoned draw-wells; wash in the rivers, dams and other superficial water sites packages, special clothing and equipment related to the fertilization <p>The farmers are obliged to apply the validated agricultural practices for the territories of sanitary security areas around the water sources and facilities for water drink supply and around the water sources of mineral springs, intended for curative, prophylactic, drinking and hygienic purposes.</p>

CROATIA

Law on environment protection (NN 82/1994, 128/1999)	✓		only definition of emissions harmful for the environment	- suggestions for tax and tariff privileges in case of using environmental friendly production procedures, production and distribution practices (to be regulated by separate legislation)
Law on water (NN 107/1995)	✓		nutrients, pesticides soil erosion	afforestation, growing protection vegetation, marking, adequate use of agricultural land utilization, drainage
Directive on dangerous substances in water (NN 78/1998)		✓	nutrients, pesticides	- prescribe harmful substances and their quantities harmful for water resources (indirectly connected to farming practice)

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
State Water Protection Plan (NN 8/2002)	✓		defining contamination and pollution of water, all harmful stuffs included	limitation of building and producing on small waterstreams where waste water can endanger water quality adopting new, better production technologies
Law on agricultural land (NN 54/1994)	✓		soil erosion	
Regulation on agricultural land protection from harmful substances pollution (NN15/1992)		✓	nutrients, pesticides	calcification materials, soil conditioners, different organic and mineral products for improving soil quality
Law on ecological agriculture (NN 12/2001)	✓		nutrients, pesticides	- defining system of sustainable management in agriculture and forestry, involving plant and livestock growing, production of food, raw material and fibre - additionally regulated by specific regulations (NN 13/2002)
Law on state support in agriculture, fishery and forestry (NN 87/2002)	✓		indirectly – nutrients, pesticides	- higher payments for ecological production practices
Law on plant protection (NN 10/1994)			pesticides	

ROMANIA

Water Law no. 107/1996,	✓		Nutrients, pesticides	Regulates risk of point source pollution, including from agriculture. Within the law there are different requirements concerning 4 categories of water quality from drinking water (1 st) to degraded water (4 th)
Law no. 137 For Environmental Protection from 17/02/2000, republished	✓		Use of pesticides and fertilisers Protection of water and aquatic ecosystems	Includes section on section "Use of pesticides and fertilisers" which places obligations upon natural and legal persons who produce, trade and/or use fertilisers and pesticides, including restrictions on: <ul style="list-style-type: none"> aerial spraying of pesticides spraying close to honeybees types of insecticide to be used to avoid harm to pollinating insects In the section "Protection of water and aquatic ecosystems" there are additional obligations regarding: <ul style="list-style-type: none"> the disposal of wastes and dangerous substances, such pesticides, in or near to rivers and other waters the washing of equipment and containers in natural waters, including those that have contained pesticides
Ministry of Health and Family – STAS no1342/1991 regarding the quality of drinking water		✓	Drinking water and water used in households	STAS defines the admissible level of nitrites 45mg/l into drinking water, which is lower than 50mg/l allowed by European legislation.
Government Decision No. 964/10.13. 2000 for approval of Action Plan regarding the	✓	✓	a) decreasing of waters pollution caused by nitrates resulted from agricultural sources;	The maximum admissible limit of nitrate concentration into the waters shall be below 25 mg/l. For each animal farm the quantity of fertilisers of animal origin annually applied on the land,

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
water protection against pollution with nitrates resulted from agricultural sources			b) prevention of nitrates pollution; c) optimising and rationing of chemical and organic fertilisers which comprise compounds of nitrate.	including manure shall not exceed the specific norm/hectare. The specific norm/hectare is represented through the quantity of administered fertiliser which contains 170 kg of nitrate. Derogation can be made for the first 4 years of implementation, when the specific norm/hectare of 210kg is allowed. Limitation the number of fertilisers applied on the land according to good farming practices, taking into account the characteristic of vulnerable areas, especially by: <ul style="list-style-type: none"> land slope, characteristics and type of soil, climatic conditions, irrigation systems etc.; agricultural practices and land use modalities, including the system of crop rotation This Government Decision sets out a general framework of Good Agricultural Practices.
Government Decision no. 118/02.17.2002 regarding the approval of Action Plan for decreasing of pollution into the aquatic environment and underground waters, caused by removing of dangerous substances		✓	Prevention of pollution of surface and underground waters against dangerous substances and restriction of pollution consequences over the aquatic environment and humane health.	This Government Decision sets out: <ul style="list-style-type: none"> A list comprising selected substances based on more characteristics – toxicity, persistency, bio-accumulation - except for the substances which are both harmless against aquatic biologic components or are transformed into substances which become harmless Criteria for identification of polluted waters both with dangerous substances or liable to such pollution. A table with maximum limits of dangerous substances at evacuation on surface waters;

Typical comments from national experts on the adequacy of pollution control regulations, including reasons for poor implementation and/or enforcement, in the three EU candidate countries were as follows:

- Regulations for pollution control are too general, sometimes over-ambitious, lacking detailed definitions, are poorly co-ordinated with agricultural policy measures and not sufficiently focussed upon agricultural pollution issues
- Many national regulations still need revising to make them relevant to the prevailing circumstances (e.g. harmonization with EU legislation), but there is a lack of policy-making experience
- Concerns remain that national policy-makers (and implementing authorities) do not sufficiently recognise the importance of agriculture as a source of water pollution
- The role and responsibilities of different authorities, institutions and organisations regarding the control of agricultural pollution are unclear
- There is a lack of communication and co-operation between the policy-makers and other relevant authorities, institutions and organisations (including NGOs) – this commonly includes poor co-ordination between the responsibilities of the Ministries of Environment/Water and Agriculture. This is an obstacle to the necessary decision-making for robust and integrated pollution control policies
- Authorities responsible for the control, monitoring and enforcement of environmental legislation do not have sufficient administrative capacity (including adequately trained staff) at both national and regional levels to adequately perform the checks and controls that are required to make the regulations effective

Economic Instruments and Measures

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
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BULGARIA

Water act	Fine (2500 - 7000 EURO)		Nutrients Pesticides Farm wastes	Fine, or respectively estate sanction is imposed on natural or legal entity that pollutes the coastal areas, that could be potentially flooded and violates the following restrictions: 1. storage of pesticides, fertilizers pesticides, disposal and treatment of wastes 2. building of livestock farms; 3. construction of buildings
Act on protection of agricultural lands		Tax and credit preferences	Erosion	The land owners and land users have the right to certain tax or credit preferences when the apply: 1. the obligatory restriction for the usage of the agricultural lands; 2.the recommendations for preservation of the surface layer and its ecological functions; 3. antierosion agrotechnics; 4. systems for organic agriculture and agriculture with reduced use of pesticides and fertilizers; 5. projects for restoration and improvement of the fertility of the agricultural lands
Act on protection of agricultural lands	Fine (60 - 1000 EURO for first violation; 120 to 2000 EURO for second)		Erosion	The fine is imposed when certain activity that leads to damaging, pollution or land degradation is performed
Water protection act	Fine			Everyone who is responsible for dangerous soil changes (including pollution with pesticides, manure and mineral fertilizers, as well as soil degradation from water and wind erosion with its anthropogenic aspects) is obliged to restore by himself the normal quality and functions of the soil to such extent that it will not be dangerous for the human race permanently.
SAPARD measure Development of environmentally friendly practices and activities		Incentives (direct payments)		From the beginning of the next year the farmers are entitled to certain incentives for performing environmentally friendly practices and in certain regions. One of the conditions of the measures is compliance with codes for Good farming practice on the whole-territory of their farms

CROATIA

Subsidies for ecological agriculture		✓	nutrients, pesticides	all ecologically based systems of agricultural production – crop production, livestock production, aquaculture
Water protection fee, penalties for non-observance the Law on water	✓		harmful substances over permitted marginal values	n.a.
Fines, charges and penalties for farmers applying slurry and liquid manure during	✓		nutrients	rarely enforced to small-size private farms, mostly to the big (ex-state) farms

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
winter and in quantities other than those prescribed by the Regulation on agricultural land protection from contamination with harmful substances				

ROMANIA

Fines and penalties	✓		Nutrients Pesticides Farm wastes	a) Storage and using of pesticides, nutrients or other toxic and dangerous substances within protected areas; b) Storage of any types materials on river beds or banks of water flows, water channels, dams, lakes, ponds and see-wall or in their protected areas; c) Washing in water flows, lakes and their beds of animals disinfected with toxic substances by using of detergents and packages which contains pesticides or other dangerous substances; d) Grazing within protected areas of water flows;
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Comments from the national experts on the adequacy of economic instruments used for pollution control, including reasons for poor implementation, in the three EU candidate countries were as follows:

- The role and responsibilities of different authorities, institutions and organisations regarding the control of agricultural pollution are unclear
- Financial penalties imposed upon polluting farmers are claimed to be too low
- There is a lack of communication and co-operation between the policy-makers and other relevant authorities, institutions and organisations (including NGOs) – this commonly includes poor co-ordination between the responsibilities of the Ministries of Environment/Water and Agriculture. This is an obstacle to the necessary decision-making for robust and integrated pollution control policies
- Authorities responsible for the control, monitoring and enforcement of environmental legislation do not have sufficient administrative capacity (including adequately trained staff) at both national and regional (e.g. local environmental inspectorates) levels to adequately perform the checks and controls that are required to effectively implement these policy instruments. There are a lack of financial resources available to build capacity
- There are currently various incentive schemes under development (notably agri-environment measures for co-financing with EU SAPARD funds), but the administrative capacity to implement these is still limited at present. Many policy-makers are also likely to remain sceptical about their value until they are “seen” to work

Advisory/Informative Instruments and Measures

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
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BULGARIA

Technical assistance by independent advisory service	Yes	Nutrients, farm wastes, pesticides	Organic farming
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Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
Technical assistance by State advisory service	Yes	Nutrients, farm wastes, pesticides	Recommended levels of applications of fertilisers and pesticides
Technical assistance by providers of farm inputs	No		
Education and awareness-raising campaigns	Yes	Nutrients, farm wastes pesticides	Best practices approaches
Demonstration farms	Yes	Nutrients, farm wastes, pesticides	Agri-environmental activities
Learning by sharing of ideas among the farmers	Yes	Nutrients, farm wastes, pesticides	Exchanges of experience between farmers, open days, etc...
Publications and other information materials	Yes	Nutrients, farm wastes, pesticides	
Training	Yes	Nutrients, farm wastes, pesticides	

CROATIA

Technical assistance by independent advisory service	Partial	nutrients, pesticides	Recommendation for some kind of "good agricultural practice" within the agricultural firms
Technical assistance by State advisory service	Yes	nutrients, pesticides, erosion	Always available suggestions and recommendations of agricultural production technologies
Technical assistance by providers of farm inputs	Yes	nutrients, pesticides, erosion	
Education and awareness-raising campaigns	Yes	nutrients, pesticides	Recommendation for ecological systems of agricultural production
Demonstration farms	No		
Learning by sharing of ideas among the farmers	Yes	nutrients, pesticides, soil erosion	
Publications and other information materials	?	pesticides, nutrients	
Training	?		

ROMANIA

Technical assistance by independent advisory service	No		
Technical assistance by State advisory service	Yes	farm wastes	The farmers who live in the mountain area benefit of training for farm management in which are included courses for management of waste management in animal farms
Technical assistance by providers of farm inputs	No		
Education and awareness-raising campaigns	No		
Demonstration farms	No		
Learning by sharing of ideas among the farmers	No		
Publications and other information materials	No		
Training	No		

Comments from national experts on the limitations and problems found with the implementation of advisory/informative instruments and measures in the three candidate countries preparing for EU accession were as follows:

- extension and farm advisory services are mainly orientated towards recommendations for conventional practices – only a very few activities are dedicated to the application of environmentally friendly practices

- there are not enough advisers to provide full and effective advice to all farmers. The resources available for development of agricultural extension services are limited and most small-scale farmers cannot afford to pay for advice or information.
- local NGOs are potentially important for the dissemination of information to farmers, but they usually have no permanent staff, limited organization, lack of financial resources etc.
- training activities for farmers tend to be irregular and limited in geographical coverage – they are often associated with project-based activities undertaken by local NGOs in specific regions. There are only a few relevant organizations working on a national level
- the availability of relevant advisers (e.g. for organic farming) varies from region-to-region so that information and technical assistance on more environmentally-friendly farming methods is not evenly distributed
- the qualifications and experience of agricultural advisers should be broadened and extended to include greater knowledge about pollution problems.
- there are very few new or updated advisory materials/publications on environmental protection being produced for farmers. When new materials are produced they are not printed in sufficient quantities or promoted enough
- promotional campaigns targeted at farmers can be successful, but are not sufficiently funded
- extension services and advisers have poor co-operation with the Ministry of Environment and associated environmental protection agencies, consequently they tend to have limited access to relevant information on environmental protection
- there are no advisory or information instruments specifically focused on protecting water from agriculture. Advisory institutions provide only general information on environmentally friendly agriculture that sometimes include water pollution issues

Project-Based Instruments and Measures

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
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BULGARIA

Bulgaria Wetlands Restoration and Pollution Reduction Project (WRPRP) "Farmer Transition Support Fund" (FTSF)	Total WRPRP budget \$13.28 mill of which \$400,000 equivalent will be made available over 3 years period for the FTSF (starting in 2004)	Nutrients Farm wastes	<p>Practices Encouraged</p> <p><i>Manure management</i> Improper storage of manure and organic wastes is recognized in the two project areas as a major source of groundwater pollution. The farmers will receive support for construction of manure storage facilities. They have to apply efficient manure management; to optimize the number of the livestock units per ha and the surface of the area on which the manure will be spread by limiting the amount of manure per ha; to observe a special period of time for spreading the manure on the field</p> <p><i>Organic farming</i> Low inputs of fertilizers and pesticides during the last decade provide good pre-conditions for the development of organic agriculture in the region. Support will be provided for organic production of fruits (orchards) and vegetables, herbs and essential-oil crops.</p>
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Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
<p>PHARE Twinning code: BG/2002/IB/AG/02 Support to pre-accession strategy of Ministry of Agriculture and Forestry and Ministry of Environment and Water in the Field of Agri-environment</p>	1 MEURO	<p>Nitrates Farm wastes Good agricultural practices</p>	<p>The immediate objectives of the project are: Assistance in the finalization of the harmonization of the Bulgarian legislation with the EU legislation and EU practice, according to the requirements of the Directive 91/676/EEC (Nitrate Directive) in the field of Good Agricultural Practice and assistance in the implementation of the Code for Good Agricultural Practice. Assistance in the harmonization of the Bulgarian legislation with the EU legislation and EU practice according to the requirements of the Regulations 1257/99 and 445/2002 (agri-environment and rural development legislation). Assistance in strengthening the agri-economic capacity to establish area related payment calculation methods regarding the agri-environmental schemes. Assistance in setting up a monitoring and control system for Agri-environmental measures, the Code for Good Agricultural Practice and the Rural Development Measures according to the EU requirements.</p>
<p>PHARE project BG 360006-03/2001 Protection of waters against pollution caused by nitrates from agricultural sources – directive 91/676/EEC – The results of the project (the pilot codes for Good Agricultural Practice for Plovdiv region) are going to be incorporated in the project</p>	n.a.	<p>Nitrates Good Agricultural practices</p>	<p>Harmonization of legislation The results of the project are pilot codes for Good Agricultural Practice (developed on the base of Plovdiv region, but disseminated throughout the country)</p>
<p>Black sea ecosystem recovery project (UNDP-GEF)</p>	n.a.	Nutrients	<p>Control of nutrients discharges emerging from agricultural sector is highlighted in the following components of the project: Objective 2. Regional actions for improving land based activities and legislation to control eutrophication and for tackling emergent problems Objective 4 Introduce new sectoral laws and policies and a system of process, stress reduction and environmental status indicators for monitoring the effectiveness of measures to control eutrophication (and harmful substances) Objective 6. Assist the public in implementing activities to reduce eutrophication through a programme of grants for small projects and support to regional NGOs</p>
<p>Partnership for preservation of Black sea from eutrophication and introducing sustainable agricultural practices</p>	n.a.	Nutrients	<p>Gathering and dissemination of “best farming practices” and best experience for protection and control of the eutrophication. Publishing a manual for the farmers with best agricultural practices and measures for protection of water basins. Analysing the European legislation and the mechanisms for support of the good farming practices Organisation of seminars for promotion of the concept of sustainable agriculture</p>

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
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CROATIA

Various applied research projects on integrated/sustainable agricultural practices by universities and other institutes		Nutrients Pesticides Soil erosion	
Evaluation of the situation, sources and the level of agricultural pressure on water resources and sea in the Republic of Croatia	n.a. Faculty of Agriculture Croatian Water	Nutrients, Farm waste Pesticides Soil erosion	Including elements of sustainability in farming practice; improvements in farm waste management (manipulation, capacities), planning the volume of agricultural (livestock) production in connection with the size of farm (arable land); ensuring correct data keeping on used pesticides at the local level and in general, determining active substances in pesticides and locations for monitoring this substances in water resources, ensuring education of farmers regarding use of pesticides
Policy of support for environment protection in agriculture	n.a. Ministry of Agriculture and Forestry of the Republic of Croatia	Nutrients	suggestions for the state administrative measures toward environmental friendly farming system support
Ecological agriculture and sustainable rural development in Croatia	n.a. Ecologica (Croatian NGO) and AVALON (Netherland)	Nutrients, Farm waste Pesticides Soil erosion	demonstrations and experiments on selected farms popularization of ecological production systems informing and education

ROMANIA

The "Agricultural Pollution Control Project"	financed by GEF (4,5 million US\$) and the Government (450,000 US\$)	The overall project development objective is to increase significantly the use of environment-friendly agricultural practices in the project area and thereby reduce pollution from agricultural sources in Romania to the Danube River and Black Sea.	<ul style="list-style-type: none"> Reducing the discharge of nutrients and other agricultural pollutants and yield substantial benefits in terms of improved quality of Romanian surface and ground waters and the Black Sea through land and water management of the Calarasi region and ecological rehabilitation of two agricultural polders. Activities in the Calarasi Judet (US\$9.21m) Manure management Practices (US\$5.27m). This sub-component will provide grants for the manure collection and application in the seven comunas. Grants on a cost – sharing basis of about 70% of total cost will be provided for the construction of village level solid waste manure facilities and small storage bunkers with effluent collection facilities at the household level, as well as supply of equipment for manure handling and spearing. Promotion of environment – friendly agricultural practices (US\$2.48m). This sub-component will promote the adoption of better agricultural practices that would improve agriculture production while reducing nutrient discharge pollution for agriculture. The
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Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
			proposal activities would include: i) the promotion of environmentally friendly agricultural practices; and ii) demonstration program of integrate crop and nutrient management, including crop rotation and efficient application of organic and inorganic fertiliser based on soil tests using soil testing kits provided by the project. This component will consider adapting the Code of Best Agricultural Practices used by EU countries according to the EC Council Directive regarding water protection against pollution with nutrients originated from agriculture - 91/676/CEE (Nitrates Directive). Promotion of regional co-operation and replication activities.
The project for promotion of Environment Strategic Analyse - Bilateral project between Romania and Nederland		Nutrients, farm wastes, soil erosion	Sustainable development of Peris Commune, in the context of rehabilitation the pigs breeding farm with more than 60,000 heads; <ul style="list-style-type: none"> • Observing of production technologies form the pigs breeding farm; • Adequate applying of disinfection and rodent control methods for farm; • Observing the feeding recipes of pigs taking into account age, breed and categories (in order to prevent the appearance of mineral imbalances) with impact over the feed assimilation and characteristics of waste products – waste water and mud; • Proportioning the pig number as against wastewater treatment capacity and land surfaces capacity on which the residual products are applied.

Project activities in the EU candidate countries are a combination of:

- traditional investment-type projects with large budgets and a range of project activities commonly integrating some policy support with indirect investment into farms to prevent water pollution. Some of these large projects are operating on a catchment level and are targeted into spreading the experiences to the rest of the country;
- technical assistance for capacity building for the development and implementation of policies relating to agricultural pollution control
- small budget research and development projects with some link to policy-making

Promotion of Best Agricultural Practice

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:				
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion	
BULGARIA	Under development	Yes	✓	✓	✓	✓
Description	-					

How is information available to farmers?	It is expected that the Code of Good agricultural practices will be developed and published in a booklet till the end of 2004
Are there any special projects or programmes for promoting GAP/BAP?	No

	Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
			Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion
CROATIA	No	-	-	-	-	-
Description	-					
How is information available to farmers?	-					
Are there any special projects or programmes for promoting GAP/BAP?	-					

	Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
			Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion
ROMANIA	Yes	Yes	✓	✓	✓	✓
Description	<p>Advice is offered to farmers on good practice regarding:</p> <ul style="list-style-type: none"> Fertilization rates e.g. adapting fertiliser rates to suit the type of crop and soil Precautions for avoiding the risk of water pollution when using mineral fertilisers e.g. when soil is waterlogged or frozen Fertilisation with manure and other waste resulting from poultry and animal husbandry Soil erosion control e.g. depth, direction and time of poughing Good agricultural practices for optimising the use of fertilisers and manures 					
How is information available to farmers?	The Code of Good Agricultural Practice is under preparation through a World Bank project. Its completion is foreseen to be in the third quarter of 2003					
Are there any special projects or programmes for promoting GAP/BAP?	This project shall promote public awareness and mechanisms for replicability. The project envisaged as a demonstration activity in Calarasi County in the southern part of Romania, along the lower Danube, may provide replicable lessons for introduction of similar practices in other districts of Romania as well as other Black Sea Riparian Countries					

Policy Mix

* Where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measures	Pollution Issue	Policy Instruments Used				Potential to Reduce Pollution	Effectiveness in Reducing Pollution (average score)*
		Reg	Econ	Adv	Proj		

BULGARIA

Waste and pesticides storages and cattle close to waters, Direct pollution of waters (disposal, waging), Inputs in protection zones, organic farming.	Nutrients, farm waste, pesticides	√		√		High	2
GFP, AEM in SAPARD.	Nutrients, farm waste, pesticides erosion		√			High	3 (Not implemented yet)

CROATIA

Liquid manure management.	Farm waste	√	√			High	3
No pesticides along rivers.	Pesticides	√	√			Moderate	2
No development and farming in the most sensitive areas.	Nutrients, farm waste, pesticides	√	√	√		High	1

ROMANIA

Storage materials risky for water in water proximity	Pesticides farm waste,	√	√			High	2
Grazing in water proximity, destroying of green belt along waters	erosion	√	√			Moderate	2

The following specific gaps in policy development and implementation were identified by the national experts:

Bulgaria

- Regulatory framework is regarded as sufficient but administration is not sufficient and fines are not adequate (some too low and other too high).
- It is similar with other instruments in case of implementation but these are not in addition sufficiently designed to address the pollution issues.
- Codes of Good Farming Practices, Good Farming Practices, economic instruments (especially those rewarding farmers) and training are lacking and should be developed to assure efficiency of policies regarding water pollution.

Croatia

- It is believed small-scale farming operating on sustainable basis is not harmful to water quality in this country therefore general awareness increase should be supported.
- Even there is large amount of legislation adopted, policies are too general and lacking specific legislation targeting particular issues in farming related to water pollution. Regulatory instruments should be better controlled.
- Whole system of water protection is lacking sufficient data supporting effectiveness of all policy instruments and decision-making.
- Policies should start with education at different levels (from administration to farmers).

- Ministries of Environment and Agriculture should extent cooperation to avoid lack of coordination.
- There is general lack of rewarding measures.

Romania

- General lack is in implementation capacities (inspections, enforcement etc.) and low experiences in management, economic instruments and thus the water pollution issues are not addressed well.
- Reasons for low level of implementation is understaffing as a results of budgetary restrictions.
- On national level there is lack of coordination between Ministry of Environment and Agriculture
- Low enforcement is represented by low fines, which are not motivating for behaviour change.
- There is lack of necessary information about links farming-water quality and other data needed for good decision making.
- There should be started strong awareness rising campaign, training farmers about agri-environmental measures combined with demonstration farms. Agricultural policy should well reflect farm structures in country.

Other DRB Countries

Bosnia & Herzegovina – Annex 2

Moldova – Annex 7

Serbia & Montenegro – Annex 9

Ukraine – Annex 12

Strategies

No clearly defined national strategies for agricultural pollution control were reported by the national experts in Bosnia & Herzegovina, Moldova, Serbia & Montenegro or Ukraine. Although some national policy objectives for specific agricultural pollution issues were identified in both Moldova and Serbia & Montenegro – notably regarding farm wastes, pesticides and soil erosion.

This appears to be largely related to the fact that agriculture is not recognized as an important source of water pollution (especially diffuse pollution from farmland) in these countries and there is no pressure upon policy-makers to develop a strategic approach for pollution control.

Regulatory Framework

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
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BOSNIA & HERZEGOVINA: Federation of Bosnia & Herzegovina

Water Law	✓		Point Source pollution; Soil Erosion	Agricultural pollution is addressed in very general way
Water Protection Law	✓		Restriction on the use of fertilizers and agents for plant protection	According to the new Water Protection Law, responsible bodies may limit, regulate or even prohibit the use of artificial fertilizers, natural manure and agents for plant protection. The responsible Minister shall establish a code of good agricultural practice in order to reduce water pollution by nitrates and pesticides. The implementation of good agricultural practice will be obligatory in vulnerable zones. Detailed requirements and restrictions that farmers are required to comply with are not yet established. When the new law enters into force it is expected that the relevant authorities shall adopt sub-laws with the requirements and restrictions for the farmers to comply with.

BOSNIA & HERZEGOVINA: Republic of Srpska

Water protection law Official Bulletin – SG of RS No. 53/2002, § 1, § 24, § 25, § 28, § 29	✓		Nutrients, Slurry & farm wastes, Pesticides Soil erosion	Prohibition of discharges farm wastes into underground water, lakes, fish pond and irrigation systems Prohibition of pesticides and fertilisers application in specified areas Prohibition of storage and transport of pesticides and fertilisers in specified areas Prohibition on the building Farm and Enterprises in areas where manure and slurry are a pollution risk
Law about Agricultural Land, Official Bulletin -	✓		Erosion Mineral Fertilisers Manure	Measures for erosion reducing Getting soil for production organic farming, Level of erosion

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
SG of RS, No. 13/1997 § 8, § 10, § 25, § 26, § 27, § 46			Pesticides	Prohibitions of discharges of harmful substances in soil Recommendation of mineral fertilisers and manure norm due to arable farming and fruit growing Regular control of water quality
Environment protection law, <i>Official Bulletin</i> – SG of RS No. 53/2002, § 13, § 14	✓		Erosion Harmful substances Mineral Fertilisers Pesticides Waste water	Restriction on the method, limit of manure application Mineral Fertilisers and pesticides Prohibition of discharges waste water and sewerage systems without refining
Waste management law <i>Official Bulletin</i> – SG of RS No. 53/2002, § 6	✓		Animal waste Liquid waste	Preventive measures, environment risks reduce

MOLDOVA

Law on Environmental Protection (1993)	✓		Nutrients, farm wastes, pesticides	The prohibition of all fertilizers, pesticides and manure storage and use in water protection zones; the prohibition of pesticides use in period of crops bloom
Water Code (1993)	✓		Nutrients, farm wastes, pesticides	The prohibition of water pollution with fertilizers, pesticides, farm wastes
Law on Drinking Water (1999)	✓		Nutrients, farm wastes, pesticides	For protection Zone 1: the prohibition of fertilizers, manure, pesticides storage and use within 50 m of shallow wells and 30 m of deep wells
The general requirements on water protection from fertilizers pollution. State Standard 17.1.3.11-84		✓	Nutrients	The prohibition of fertilizers storage within 50 m of water sources; the prohibition of fertilizers and its packages storage in uncovered places; the limits of nitrogen fertilizers application in autumn
Law on Protection Areas and Forested Strips for Rivers and Reservoirs (1995)		✓	Nutrients, farm wastes, pesticides	The prohibition of fertilizers, pesticides and manure storage and application within 300 m of a river or lake; the prohibition of animals pasturing in water protection zones
Law on Plant Protection (1999)	✓		Pesticides	The prohibition of pesticides using which did not pass the test and are not recorded in Moldova
List of chemical and biologic preparations permitted for use in agriculture (1997)		✓	Pesticides	There are indicated: the norm of consumption; the mode, period and limits of using; the period of last treatment until the harvest; the maximum number of treatment
Law on Regime of Harmful Products and Substances (1997)	✓		Nutrients, pesticides	The general requirements concerning the produce, storage, use of harmful substances (pesticides, fertilizers)
On Measures for Centralizing Storage & Disposal of Obsolete Unused and Prohibited Pesticides (2001)		✓	Pesticides	The concentration of pesticides wastes in 3-4 typical storehouses in every judets
Law on Wastes of Production and Consumption (1997)	✓		Farm wastes	The prohibition of waste disposal into waters and water protection and sanitary zones
Law on Payment for Environmental Pollution (1998)		✓	Farm wastes	The law has introduced payments for pollutants discharge into water bodies and also for farm wastes disposal sites

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
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SERBIA & MONTENEGRO

Law on Environmental Protection of R. of Serbia (Official Gazette no.49/92)	✓		Water protection Soil Protection	Art. 23. Prohibition to release polluted waters in surface and ground waters if contain harmful and hazardous substances. Art. 28 Prohibition of unregulated use mineral and organic fertilisers, and plant protection substances...
Law on Water (Off. Gazette no 46/91)	✓		Water protection	Art. 56 Stipulates prohibition of release and intake of harmful and hazardous substances in surface and ground waters and sewerage system if it will result in pollution.
Law on Agricultural Land (Off. G. 49/1992, with later amendments) Chapter II Protection of agricultural land	✓		Soil & water pollution	Art. 14 prohibits release and storing of hazardous and harmful substances at the agricultural land and irrigation channels in quantities that could damage and change production quality of the agricultural land and water for irrigation purposes. Art. 16. To protect and maintain chemical and biological characteristics of the agricultural land and securing appropriate use of organic and mineral fertilisers owner and user of the land should implement systematic control of the fertility of the soil , and producers and importers of mineral fertilizers have to comply with regulations of its quality.
Rule on kind and content of measures which owner of agricultural land should apply (Off. G. no.33, May 1993)	✓		Nutrients Pesticides	Art. 5. Fertilising and protection of the crops and agricultural land - defines that, measures to fertilise and protect agricultural land means use of organic and mineral fertilisers and protection from weeds, diseases and pests.
The Law on Plant Protection (Off. G. of FRY no. 24 from 15 May 1998)		✓	Pesticides	This law regulates protection of the plants of harmful organisms, plant health control in internal and external traffic and traffic of the plant protection substances and plant nutrition substances. Law establishes a set of measures and regulations to protect plant protection. It has very close relation with control of the pollution of the agricultural land with pesticides and fertilisers.

UKRAINE

State Committee on Water Industry of Ukraine. "On Approval of Regulation On Execution of Control by State Committee on Water Industry of Ukraine bodies over Economic Use, Protection and Replenishment of Water Resources"	✓		Pollution by all substances	Compliance with requirements of environmental protection legislation regarding water resources
KMU Directive "On Procedures Regulating Water Resources State Monitoring"	✓		Pollution by all substances	Compliance with requirements of environmental protection legislation regarding water resources

Regulatory Instrument	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/Restricted by Regulatory Instruments
KMU Directive "On State Inspection and State Control over Execution of legislation on Pesticides and Agrochemicals"	✓		Pesticides Nutrients	Use of Pesticides and Agrichemicals in accordance with the current legislation requirements

Typical comments from national experts on the adequacy of pollution control regulations, including reasons for poor implementation and/or enforcement, in the other DRB countries were as follows:

- Inadequate monitoring agricultural pollution means that agriculture is not recognized as an important source of water pollution
- The development of appropriate laws for the control of agricultural pollution is very slow due to the lack of policy-making experience, adequately trained officials and financial resources
- Inadequate institutional framework and capacity necessary for the implementation of relevant legislation
- General pollution control legislation often imposes restrictions upon farmers, but there are no implementing regulations or sub-laws to elaborate and implement the legislation in detail, including no provision for penalties
- Where legislation does exist, agricultural pollution issues are not considered a serious enough problem by the implementing authorities to be concerned with. Co-ordination between implementing authorities and policy-makers can be poor
- Implementing authorities lack the financial resources to target farmers for checking compliance with legislation. Some are also poorly organised and managed, and lack the technical knowledge, particularly regarding agricultural pollution
- Farmers do not believe they cause any decline in water quality decline. They are poorly informed about regulations where they exist and not deterred by poorly enforced penalties and sanctions (often they cannot pay them)
- There are no effective sanctions available to use against the large agricultural enterprises causing pollution

Economic Instruments and Measures

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
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BOSNIA & HERZEGOVINA: Federation of Bosnia & Herzegovina

Water protection charge	✓		General water pollution	The water protection charge is not specifically focused to any farming practice. Buyers of fertilizers and chemical agents for plant protection are charged per unit of fertilizer and chemical agent sold: they are therefore encouraged to reduce the amount of these chemicals bought and used.
Penalties	✓		General water pollution	Penalties are not specifically focused to any farming practice

BOSNIA & HERZEGOVINA: Republic of Srpska

Law about Agricultural Land SGRS 13/9 Punishment regulation Prohibition of use	✓		Harmful substances Fertilisers	Prohibition and punish discharges of manure and harmful waste in water and irrigation systems Prohibition of use fertilisers that does not suit the standards
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Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
Environment protection law <i>Official Bulletin</i> – SG of RS No. 53/2002, Payments for damages Responsibility	✓		Dangerous and harmful substances	Measures for strengthen of conscience of farmers. Directing on right storing of waste and slurry.
Water protection law, <i>Official Bulletin</i> – SG of RS No. 53/2002, Punishment regulation	✓		Waste water Fertilisers and pesticides	Prohibition of application fertilizers and pesticides on waterside Prohibition of discharges farm waste

MOLDOVA

The payments for the waste-water pollutants discharge into water bodies and waste disposal sites	✓		Farm wastes	Storage of farm wastes in permitted places and in limits of established specifications
The fines for soil pollution with pesticides and farm wastes and causing of soil erosion	✓		Farm wastes, pesticides, soil erosion	The prohibition of soil pollution with pesticides and farm wastes, annihilation of fertile layer of soil
The fines for non-observance of the requirements on evidence, storage and use of pesticides	✓		Pesticides	The prohibition of infringement of the standards on evidence, storage and use of pesticides, application of pesticides in sanitary and water protection zones
The fines for infringement of the water protection rules	✓		Nutrients, farm wastes, pesticides, soil erosion	The prohibition of water pollution with nutrients, farm wastes, pesticides and provocation of soil erosion by the water
The fiscal facilities for the reduction of water pollution		✓	Nutrients, farm wastes, pesticides	The application of nutrient, manure and integrated pest management

SERBIA & MONTENEGRO

Law on plant protection (Off. G. FRZ no.24 1998)	✓		Pesticides	
Rules on pesticides and fertiliser packing and disposal (Off. G. FRZ no. 59, 2001)	✓		Pesticides, fertilisers	Pesticides and fertilisers packing storing and disposal (protection of the soil and water)
Ordinance on banned and restricted use of plant protection products	✓		Pesticides	Legal instrument to harmonize our standards with international.
Law on the Fund for stimulation of development of agricultural regions (Off. G. FRY no. 21 2001)		✓	Nutrients, pesticides, fertilisers, erosion	Financially support to farmers, under favourable conditions, to introduce new agricultural technologies, switch to organic farming and similar.
Law on Environmental protection (Off. G. RS no.66 from 1992 Chapter IV- Protection of soil – art. 26 -31)	✓		Fertilizers, pesticides, Hazardous waste, solid and liquid waste	Establish criteria for monitoring and planning documents for its realization.

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument
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UKRAINE

KMU Directive "On Approval of Environmental Pollution Fees Elaboration Procedures and Payment of such Fees"	✓		Pollution by all substances	Penalties for non-compliance with requirements of environmental protection legislation regarding water resources
Law of Ukraine" Ratification of Convention on Cooperation on Protection and Proper Usage of Danube River"	✓		Pollution by all substances	Application of the "polluter-pays" principle in compliance with additional regulations elaborated in order to guarantee execution of the Convention requirements

Typical comments from national experts on the problems with implementation of economic instruments for agricultural pollution control, in the other DRB countries were as follows:

- New legislation and economic instruments relating to agricultural pollution control are only slowly being adopted
- Lack of financial resources for the development of incentive schemes. Where incentives are offered they are too low to encourage uptake by farmers
- Lack of legal power to collect fees and levies - avoidance of usage fee payments and fines for violation of water protection regulations is common
- Lack of policy-making experience in the development of appropriate mechanisms for the control and monitoring of the agricultural pollution
- Inadequate institutional framework and capacity necessary for the implementation of relevant legislation
- Poor organization and management of implementing authorities can be a problem
- Lack of administrative capacity amongst implementing authorities - either for enforcing penalty system (e.g. by making more comprehensive and regular inspections) or for running an incentive scheme. No resources available to develop this administrative capacity
- Poor co-ordination between policy-makers (including between Ministries) and implementing authorities with no single agency responsible for protection of water resources
- Poor communication with farmers

Advisory/Informative Instruments and Measures

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
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BOSNIA & HERZEGOVINA: Federation of Bosnia & Herzegovina

None			
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BOSNIA & HERZEGOVINA: Republic of Srpska

Technical assistance by independent advisory service	Yes	Nutrient Farm waste pesticides	Regular application of fertilisers, pesticides, periods and time of treatment, selection of preparations and fertilisers.
Technical assistance by State advisory service	Yes	Nutrient Farm waste Pesticides fertilisers	Regular application of fertilisers, pesticides, periods and time of treatment, selection of preparations and fertilisers.

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
Technical assistance by providers of farm inputs	Yes	Fertilisers Farm waste	Farmers education by booklets and information leaflet for regular application fertilisers and pesticides
Education and awareness-raising campaigns	Yes	Nutrient Farm waste Pesticides fertilisers	Techniques of application pesticides and fertilisers
Demonstration farms	Yes	Nutrient Farm waste Pesticides fertilisers	Demonstration of techniques application pesticides on experimental field
Learning by sharing of ideas among the farmers	Yes	Nutrient Farm waste pesticides	Application fertilisers and preparations on experience
Publications and other information materials	Yes	pesticides	Regular application, permitted doses
Training	Yes	pesticides	Regular application of pesticides

MOLDOVA

Technical assistance by independent advisory service	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of environmentally-friendly agricultural practices: crop rotation, anti-erosion tillage, nutrient and manure management, integrated pest management
Technical assistance by State advisory service	No		
Technical assistance by providers of farm inputs	Yes	Nutrients, pesticides	Promotion of nutrient and integrated pest management
Education and awareness-raising campaigns	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, manure storage, crop rotation, organic farming
Demonstration farms	Yes	Nutrients, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation, strip cropping
Learning by sharing of ideas among the farmers	Yes	Nutrients, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation
Publications and other information materials	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation, manure storage
Training	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, manure storage, crop rotation, strip cropping

SERBIA & MONTENEGRO

Technical assistance by independent advisory service	Yes	Nutrients, pesticides	Consultations concerning improvement of soil conditions and appropriate use of fertilisers
Technical assistance by State advisory service	Yes	Nutrients, farm wastes, pesticides, soil erosion	Appropriate timing and type of fertilisers to be used, erosion prevention, storage and use of manure, nutrients
Technical assistance by providers of farm inputs	Yes	Fertilisers, pesticides	Appropriate use of the products, particularly of the pesticides
Education and awareness-raising campaigns	Yes	Pesticides, fertilisers, farm wastes	Campaigns for introduction of new agro technical measures in agricultural production, campaigns in favour of organic agriculture, advisory services concerning appropriate use of pesticides, appropriate use of fertilisers, measures to improve soil quality and other
Demonstration farms	Yes	Biological re-cultivation 30 ha; Transformation of non-arable to arable	All aspects in connection with of organization of agricultural production, including pollution control.

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged
		land 125 ha; Preparation of plans and projects for protection, use and organization of agricultural land 30.000 ha	
Learning by sharing of ideas among the farmers	Yes	Fertilisers, pesticides,	Very common for this region due to fact that private farming has long tradition. More focused on production than on environmental issues <i>per se</i> .
Publications and other information materials	Yes	Fertilisers, pesticides, soil erosion, nutrients	These information materials covering all aspects of agricultural production, but much less concerning environmental consequences, like water pollution
Training	Yes	Fertilisers, pesticides, farm waste	Application rates, nutrients, organic farming

UKRAINE

Technical assistance by independent advisory service	No		
Technical assistance by State advisory service	No		
Technical assistance by providers of farm inputs	No		
Education and awareness-raising campaigns	No		
Demonstration farms	Yes	Fertilisers, pesticides, farm waste	Use of up-to-date technologies More efficient agricultural production due to the use of more efficient means and technologies
Learning by sharing of ideas among the farmers	Yes	Fertilisers, pesticides, farm waste	Use of up-to-date technologies More efficient agricultural production due to the use of more efficient means and technologies
Publications and other information materials	Yes	Fertilisers, pesticides, farm waste	Improvement of understanding of environmental issues by farmers
Training	No		

Comments from national experts on the limitations and problems found with the implementation of advisory/informative instruments and measures in the other DRB countries were as follows:

- There is relatively little information available on agricultural water pollution and it is not accepted as an important issue. Most awareness is about serious point source pollution – there is little awareness of diffuse pollution from agricultural land
- Most agricultural extension and advisory work focuses on production issues – pollution control is a secondary issue and there is very little interest in or understanding of environmental issues
- There is relatively little technical information available for farmers explaining how to avoid water pollution when using fertilisers, pesticides and manures
- Advisers and staff of extension services are not interested or adequately trained in more environmentally-friendly farming methods. Extension services do not have the experience or resources to train staff – particularly at a regional and local level where staff are working most directly with farmers
- Economic instability in agricultural sector reduces the efficiency of technical assistance of the advisory services
- There are financial resources available for making publications and other information materials

- There is poor co-operation between scientific institutes, NGOs, ministries etc. in the communication of information about agriculture and water pollution
- The division of land into small, fragmented plots is an obstacle for the implementation of “good agricultural practice” and is difficult for advisers to assist
- Most information campaigns are organized by NGOs or other organizations of civil society, usually as result of some specific environmental problems or incidents. Agricultural pollution is not such an obvious problems for NGOs to take interest
- Even with good advice, small farmers are less inclined to invest in more environmentally-friendly farming practices

Project-Based Instruments and Measures

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
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BOSNIA & HERZEGOVINA: Federation of Bosnia & Herzegovina

Strengthening of Diffuse Source Pollution Control in FB&H	400,000 Euro The project is funded by LIFE-Third Countries and HEIS	Nutrients (nitrogen, phosphorus)	The output of the project is a handbook on best management practices to reduce diffuse pollution. Sections of the handbook are dedicated to the agricultural practices. There is a strong dissemination component in the project, aimed to promote best management practices to reduce diffuse pollution on a voluntarily basis.
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BOSNIA & HERZEGOVINA: Republic of Srpska

Researching of heavy metals, pesticides presence and radioactivity in “Lijevo field”, ecosystem, Ministry of Science and Technology of RS	5,000 Euro	Pesticides	Increase or reduce pesticides quantity in dependence on their presence in soil
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MOLDOVA

First Agricultural Project	11.8 mill USD	Pesticides	One of the scopes of this Project was the implementation of integrated pest management
Containment actions and remediation plan for an agricultural pesticide dump near Vulcanesti	0.10 mill EURO	Pesticides	Development of a remediation plan for pesticide dump
Prut River Tributaries: Environmental Review, Protection Strategy and Options	1.30 mill EURO	Nutrients, soil erosion, farm wastes	Promotion of nutrient management, crop rotation, conservation tillage, manure storage, organic farming
Agricultural Pollution Control Project (APCP)	5.00 mill USD	Nutrients, farm wastes, soil erosion	Promotion of nutrient and manure management, conservation tillage, crop rotation, strip cropping, buffer strips, grassed waterways, pastures management, organic farming

SERBIA & MONTENEGRO

Multi year macro project financed by Ministry of Agriculture and Water Resources “ Fertility control and determination of contamination with harmful and hazardous substances of Serbian soils” (400 samples at 400.000 ha) . In 2002 there was IV phase of the project realization.	In 2002, approx. 90 000 Euro	Nutrients and pesticides	It is anticipated that some aspects of Best Agricultural Practice for Serbia will be developed by this project.
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Project	Project Budget	Pollution Issue	Farming Practices Encouraged/Discouraged by the Project Activities
Ministry of Science, Technologies & Development, in cooperation with Ministry of Agriculture and Water Resources and Ministry for Protection of Natural Resources & Environment will finance as one of the National programmes following one: Organization, Protection and Use of the waters in Serbia.	Not announced yet		

UKRAINE

None			
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Project activities in the other central and lower DRB countries are predominantly traditional investment-type projects with relatively large budgets and a range of project activities commonly integrating some policy support with local/regional investment to prevent water pollution. Some of these large projects are operating on a catchment level and are targeted into spreading the experiences to the rest of the country

Promotion of Best Agricultural Practice

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion
BOSNIA & HERZEGOVINA	Yes	✓	-	✓	✓
Description	The concept only exists in Federation B&H. But no Legal framework to enforce the concept is in force yet. Best agricultural practices are applied voluntarily by the farmers, although very occasionally.				
How is information available to farmers?	There is no code of good agricultural practice issued by authorities yet. Within the framework of the project entitled "Strengthening of Diffuse Source Pollution Control in FB&H" a handbook on best management practices to reduce diffuse pollution has been printed.				
Are there any special projects or programmes for promoting GAP/BAP?	The project entitled "Strengthening of Diffuse Source Pollution Control in FB&H", financed by the LIFE-Third Countries program of the EC.				

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:				
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion	
MOLDOVA	The concept of "good agricultural practice" exists in Moldova, but is not implemented	Farmers apply few procedures which reduce the risk of water pollution	✓	✓	✓	✓
Description	The practical measures on implementation of "good agricultural practice" in Moldova are developed in following Programmes and Project: <ul style="list-style-type: none"> the National Complex Programme concerning the increase of soil fertility for 2001-2020 period envisages the elaboration of the Law on soil conservation and the implementation of agrotechnic and ameliotative procedures to combat soil erosion; one of the scopes of the National Programme on Production and Municipal Wastes Management for 2000-2010 period is to implement activities regarding farm waste, phytotechnic waste and mud management; Agricultural Pollution Control Project aims at implementing in Moldova the EU Nitrates Directive, at implementing the Organic Farming System and at elaborating the Code of Good Agricultural Practices, in accordance with the peculiarity of agricultural management in Moldova. 					
How is information available to farmers?	The booklet "The methods of soil protection. Your Guide for 30 ecological methods in farmer activity", elaborated by USDA, was translated from English into Romanian in 1998					
Are there any special projects or programmes for promoting GAP/BAP?	Agricultural Pollution Control Project (APCP)					

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:				
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion	
SERBIA & MONTENEGRO	Yes	Yes	-	✓	✓	✓
Description	-					
How is information available to farmers?	There is no such publication on "good" or "best agricultural practice". There are publications on organic farming and a set of legal regulations on organic farming					
Are there any special projects or programmes for promoting GAP/BAP?	Only those programmes and projects that had been mentioned above					

Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:				
		Crop Nutrients ?	Animal Wastes?	Pesticides ?	Soil Erosion	
UKRAINE	No	-	-	-	-	-
Description	-					
How is information available to farmers?	-					
Are there any special projects or programmes for promoting GAP/BAP?	-					

Policy Mix

* Where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measures	Pollution Issue	Policy Instruments Used				Potential to Reduce Pollution	Effectiveness in Reducing Pollution (average score)*
		Reg	Econ	Adv	Proj		

BOSNIA & HERZEGOVINA

None of the practices have been promoted on field level	-	-	-	-	-	-	-
MOLDOVA							
Limits in use of fertilisers, IPM (limits in use of pesticides)	Pesticides nutrients	√		√		High	2
Manure storage, strip cropping, conservation tillage	Farm waste, erosion	√		√		High	3
Crop rotation	Nutrients, pesticides erosion	√		√		High	2

SERBIA & MONTENEGRO

Manure storage	Nutrients			√		High	2
Fertilisers storage	Nutrients	√		√		Medium	1
Pesticides use	Pesticides	√		√		High	1
Erosion prevention	Erosion	√	√			High	2
Organic farming	Nutrients, pesticides erosion	√	√			High	2
Conversion of non-arable to arable, erosion prevention	Erosion	√	√			Medium	2

UKRAINE

Nutrients and animal waste management	Nutrients	√				High	1
Green cover, strip cropping, terraces, sensitive grazing, conservation tillage, crop protection systems	Soil erosion			√		Low	3
Fertilisers/pesticides management.	Nutrients, pesticides	√				High	2

The following specific gaps in policy development and implementation were identified by the national experts:

Bosnia and Herzegovina

- Some key legislation is not still in force and a lot of specific should be developed in order to create framework for the rest of policy.

Moldova

- Policy mix has not significant effect to reduction of nutrients pollution caused by farm waste and erosion.
- There are still lacking both general and especially specific legislation (nitrates, CGFP etc.). Polluter pays principle is not applied and small number of campaigns for awareness rising and training are undertaken.

- All policy instruments should be developed in Moldova. First gaps in legal framework should be filled, second institutional responsibilities should be clearly stated, and education and training should be started.

Ukraine

- The policy mix is not addressing the agriculture water pollution issues enough and does not guarantee the water quality increase.
- The strategies are not designed. Legislation is not covering all important issues and those already adopted are usually vague and not followed by clear standards etc. It means targeted specific legislation is missing.
- There is lack of coordination of several governmental bodies.
- Wide spread is lack of implementation power among institutions involved (not carrying control and easy to corrupt). Current administration is not able to prevent import of banned pesticides (huge amount of not safe storages of such pesticides around the country etc).
- The role of local/regional government is weak (not fulfilling its role in control).
- Policy is not balanced because it is nearly whole regulatory (punishing) and not implementing supporting measures or other measures.

Summary of the Current Status of Agricultural Pollution Control Policies in the Central and Lower DRB

Existence of Strategies for Agricultural Pollution Control

All national experts reported some goals for water protection in their countries, but only Slovakia was reported to have already adopted a “water protection strategy”. Most countries in the central and lower DRB are therefore lacking a clear, targeted and overall strategy for water protection that integrates different policy measures and shows the necessary path to the achievement of indicated goals.

Most progress towards the development of water protection strategies is made in those countries preparing for EU accession in 2004, but in some of the other DRB countries there remains concern that agriculture is still not identified as an important source of water pollution.

Regulatory Frameworks for Agricultural Pollution Control

The EU Acceding Countries were reported to be addressing the major agricultural pollution issues (nutrients, pesticides, farm waste and erosion) with a range of regulatory instruments. These instruments are increasingly specific to the regulation of farming practice rather than general water protection – consequently these countries now have targeted regulations controlling undesirable farming activities plus the potential to fulfill their role in water protection if successfully enforced.

In the EU Candidate Countries it was reported from Bulgaria and Romania that not all of the main agricultural pollution issues are addressed by existing regulatory instruments. Existing instruments still tend to be rather general, with fewer specific regulatory instruments in place. Consequently there is still potential to prepare more targeted instruments to prevent water pollution through the control of specific farming practices.

In the other DRB Countries it was again reported that not all agricultural pollution issues are addressed by existing regulatory instruments. In these countries there is a noticeable lack of specific and targeted regulatory instruments for controlling water pollution by agriculture. In some countries this appears due to the fact that agriculture is still not identified as an important source of water pollution – consequently the available legislation is too general to effectively control polluting activities by farmers.

Use of Economic Instruments and Measures for Agricultural Pollution Control

Economic instruments may be incentives (farmers are financially rewarded for some activities undertaken) and/or disincentives (farmers are penalized for certain activities causing pollution) and can be used as a fundamental tool for modifying the management practices of farmers and reducing agricultural pollution. However, effective measures (or mixes of measures) need to be well-designed and balanced – as well as successfully implemented. Not surprisingly, the economic instruments used in the DRB countries under study are predominantly disincentives due to the lack of financial resources to introduce incentive schemes. Furthermore, the economic instruments which are in place do not currently cover all pollution issues in all countries.

The number of incentive measures in the EU Acceding Countries is obviously expected to increase from 2004 with EU accession and the availability of EU co-financing for rural development measures such as agri-environment programmes. If these measures are well implemented there is great potential for effective water pollution prevention (this should mitigate to some extent against the risk of increasing pressure upon water quality due to expansion of the CAP in the central DRB).

The EU Candidate Countries, on the other hand, have so-far only designed implemented a small number of disincentive measures and there are even fewer incentive schemes. This situation should change rapidly with the introduction of SAPARD-funded pilot agri-environment projects and continuing preparation for EU accession after 2004.

The Other DRB Countries are reported to have implemented a larger number of disincentive measures, but still relatively few incentive measures. Although there is considerable potential for the

introduction of further incentive schemes, this is likely to be limited by prevailing economic circumstances.

Use of Advisory/Information Instruments and Measures for Agricultural Pollution Control

The transfer of knowledge and information to farmers via advisory/informative instruments can play a key role in modifying the management practices of farmers and reducing agricultural pollution. The national experts were given a list of 8 types of this measure and asked to recognize how many of them are implemented in their country. The types of measure were:

- Technical assistance by independent advisory service
- Technical assistance by State advisory service
- Technical assistance by providers of farm inputs
- Education and awareness-raising campaigns
- Demonstration farms
- Learning by sharing of ideas among the farmers
- Publications and other information materials
- Training

All experts reported that the most frequent limitation upon this type of instrument was that actions were too small with insufficient staff and financial resources. In some countries not all water pollution issues are addressed by information measures.

There remains considerable potential for the further design and implementation of advisory /information instruments for the control of agricultural pollution in all lower and central DRB countries.

Project-based Instruments and Measures for Agricultural Pollution Control

There are a great variety of types and sizes of project targeted at improving the control of water pollution from agricultural sources in the central and lower DRB countries, including:

- scientific (investigating causal links between farming practices and water pollution etc.)
- designing of needed agricultural practices (winter cover crop recommendation etc.)
- policies developing projects (support to national policy design)
- awareness rising projects – campaigns etc.
- support of actual physical changes (e.g. investment in manure storage, erosion control etc.)

It is not possible at this stage to assess the success or otherwise of these different interventions.

Finally, the most frequently reported reasons for the poor implementation of agricultural pollution control policies in the central and lower DRB region are:

- Poor coordination of Ministries of Agriculture and Environment
- Lack of financial resources and staff
- No support for information dissemination
- Lack of targeting, too general measures
- Lack of preventive application of measures
- Poor organisation and management in administrative bodies
- Lack of policy-making experience
- Poorly defined responsibilities of different agencies and organisations
- No organisations or agencies specifically focused upon the control of agricultural pollution

Existing Situation with Development and Implementation of Best Agricultural Practice

There are no concrete and universal definitions available for what is or is not best agricultural practice – indeed, there is a risk that it is a potentially confusing term because it is so prone to being interpreted by different people in many different ways. For example, in the context of the DRB it is important to clearly distinguish between the concept of BAP and the existing EU concepts of *Codes of Good Agricultural Practice* (under the EC Nitrate Directive) and verifiable standards of *Good Farming Practice* (under the EC Rural Development Regulation, 1257/1999).

For the purposes of this project, the term “best agricultural practice” (BAP) was only applied to farm management practices that reduce the risk of pollution occurring from agricultural non-point sources in the DRB – this includes classical diffuse pollution and “small point source” pollution arising from multiple, small-scale (and often accidental) discharges that occur from different farming activities.

It was the understanding of the project team that BAP actually encompasses a broad spectrum or hierarchy of activities that must be interpreted according to local agronomic, environmental, social and economic context. Not all elements of this hierarchy are relevant in all countries of the central and lower DRB – instead Best Agricultural Practice was defined as: “...*the highest level of pollution control practice that any farmer can reasonably be expected to adopt when working within their own national, regional and/or local context in the Danube River Basin*”

The objective of policy strategies for agricultural pollution control in the different DRB countries should therefore be to promote BAP by encouraging farmers to improve their pollution control practices as far as possible in the context in which they operate and deliver the highest level of pollution control that it is feasible for them to do.

Obviously the pursuit of such strategies will require a combination of policy instruments – the so-called “policy mix” - to achieve optimal pollution control and it is clear that those countries with the most well-developed “policy mixes” are joining the EU in 2004 (CZ, HU, SK and SI), followed by Romania and Bulgaria preparing to join in 2007.

For example, CZ, HU, SK and SI have all recently finalised Rural Development Plans for implementation during 2004-2006 which contain verifiable standards of so-called Good Farming Practice (GFP) as a baseline for agri-environmental measures and Less Favoured Area (LFA) payments. Similar verifiable standards are being developed in Bulgaria and Romania for implementation of “pilot” agri-environment measures under SAPARD.

The approach to the design of GFP standards varies greatly among the 6 DRB countries preparing for EU accession – the most common approach being simply to base verifiable standards upon existing environmental legislation. For example, in Bulgaria GFP is based upon existing environmental legislation, but also includes reference to additional recommendations taken from the voluntary code of good agricultural practice for the protection of water that is under development. Verifiable standards concerning water protection include the prohibition of storing or disposing of pesticides and constructing of cattle shed or manure storage within 20 m of a river bank, stream, lake, water reservoir or seashore. After consultation with the EU Commission it was also necessary to include limits on stocking densities for animals and the level of fertiliser application according to crop.

In most other DRB countries, the national experts reported awareness of the concept of good agricultural practice amongst policy-makers and an interest in promoting it to farmers. However, the biggest problems remain:

- a) the lack of resources for preparation of information materials and appropriate awareness-raising campaigns
- b) the lack of understanding and capacity amongst extension services for promoting good practice, and;
- c) the tendency for innovative ideas and approaches concerning good practice to remain “locked” within projects without the possibility of effective dissemination

Conclusions and Recommendations

There are significant differences regarding policies for the control of agricultural pollution among the countries of the central and lower DRB ranging from those at the early stages of designing general legal frameworks for water protection policies to those with more sophisticated legal frameworks in accordance with EU requirements and already implementing specific agricultural pollution control legislation.

Nonetheless there is scope for improvement in agricultural pollution control policies all of the central and lower DRB countries – particularly regarding implementation since all countries continue to have problems arising from the slow growth in administrative capacity where there has not been sufficient time and prevailing conditions to allow the mature enforcement of policies.

Based upon the results of the policy review, the following general recommendations were made for all central and lower DRB countries:

- to design more targeted and integrated strategies for the control of agricultural pollution
- to improve the control and enforcement of regulatory instruments for agricultural pollution control
- to put more emphasis upon the design and implementation of advice/information measures for agricultural pollution control
- to develop within available resources financial incentives as appropriate economic instruments for promoting agricultural pollution control
- to promote organic farming and integrated crop management techniques as viable alternatives to the use of agrochemicals
- to design and implement standards of Good Farming Practice
- to increase farmer and advisor awareness of the importance of agricultural pollution control
- to support capacity building amongst relevant stakeholders for the implementation of agricultural pollution control policies

These are developed further in the separate report under Output 1.2 entitled “Recommendations for Policy Reforms and for the Introduction of Best Agricultural Practices in the Central and Lower Danube River Basin countries” which outlines appropriate intervention under Phase 2 of the DRP to introduce new legal and institutional instruments for reduction and control of water pollution from non-point sources of agricultural activities.

The following strategic aims, policy objectives and measures for policy reform and the introduction of best agricultural practice (BAP) in the central and lower DRB countries are formulated on a basin-wide context and should be adopted and adapted according to national/regional level context. There are six Strategic Aims proposed:

- To reduce pollution from mineral fertilisers and manure
- To reduce pollution from pesticides
- To improve compliance and enforcement of regulatory instruments for agricultural pollution control
- To develop appropriate economic instruments for agricultural pollution control
- To develop the capacities of agricultural extension services for agricultural pollution control
- To promote organic farming and other low input farming systems

In relation to the Strategic Aims, there are a total of eleven Policy Objectives proposed for national governments to adopt:

- Develop greater understanding at a national/regional level of the relationship between agricultural practice (fertiliser, manure and land management) and the risk of diffuse nutrient pollution
- Develop appropriate policy instruments and institutional arrangements for promoting better management of fertilisers and manures

- Reduce the levels of harmful active substances used for crop protection by prohibiting and/or substituting the most dangerous priority pesticides with safer (including non-chemical) alternatives
- Improve controls on the use and distribution of pesticides
- Encourage the proper use of pesticides by farmers and other operators
- Improve the use of regulatory instruments to prevent water pollution through the control of specific farming practices
- Develop and introduce appropriate economic instruments to encourage implementation of BAP
- Review and adapt the mandate and structure of agricultural extension and advisory services
- Develop the capacity of agricultural extension and advisory services for the promotion of BAP
- Develop and support pilot projects for the promotion of BAP by agricultural extension and advisory services
- Promote certified organic farming and other low input farming systems as viable alternatives to the conventional use of mineral fertilisers and pesticides

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Annex 1

Review of Agricultural Water Pollution Control Policy and Practice in the Danube River Basin

1 Review of Agricultural Water Pollution Control Policy and Practice in the Danube River Basin

Guidance Notes for GFA National Experts

(please read these notes carefully before starting the review)

The objective of this review is to clearly **classify**, **describe** and **analyze** 4 important things:

1. The **CURRENT POLICY OBJECTIVES** and **STRATEGIES** of the different Danube River Basin (DRB) countries regarding the control of water pollution caused by agriculture. This includes:

- **Point source pollution** – this includes regular and large-scale discharges of agricultural waste products directly into a river, lake or other water resource. For example, the discharge of treated or untreated animal waste into a river from a large pig or poultry-breeding enterprise
- **Diffuse pollution** – this includes pollution from non-point sources (e.g. nitrate losses from cultivated arable land) and multiple “small-scale point sources” (e.g. irregular discharge of relatively small amounts of untreated animal waste into a river from a leaking manure store on a dairy farm)

When we talk about “water pollution by agriculture” we mean the presence of harmful substances in water which is caused by agricultural activity”. This includes substances that are derived from:

- agrochemical inputs, such as mineral fertilizers and pesticides, that are used deliberately by farmers to improve crop and animal production
- farm wastes, such as silage effluent and animal manure, that are produced during usual agricultural activities
- natural processes, such as soil erosion, that are enhanced by usual agricultural activities

When preparing your review you should therefore include consider all policies, strategies and projects relating to water pollution by **plant nutrients** (nitrogen and phosphorus), **farm wastes** (manure, slurry, silage effluent etc.), **pesticides** and **soil erosion**.

2. The various **POLICY INSTRUMENTS** and **PRACTICAL MEASURES** that are currently used and/or in preparation for implementation in the DRB countries in order to promote the control of water pollution by agriculture (e.g. to implement national policy objectives, prepare for joining EU or comply with international conventions). This includes:

- **Regulatory** instruments and measures – these use a country’s legal system to establish norms/standards, regulations, prohibitions, permits etc.
- **Economic** instruments and measures – these use “money“ as the driving force for changing the management practice of farmers and may involve instruments which are either “punishing” (e.g. fines and penalties) or “rewarding” (e.g. subsidies and compensatory payments)
- **Advisory/informative** instruments and measures – these use information (e.g. publicity campaigns) and advice (e.g. agricultural extension service) to encourage farmers to voluntarily change their farming methods in order to reduce the risk of water pollution. Where applicable this should include reference to existing advice on “good” or “best” management practice for avoiding agricultural pollution

- **Project-based** instruments and measures – in some countries the agencies most actively working on agricultural pollution control are often operating outside of national policy-making activities and are working instead with some other form of alternative assistance (e.g. from an international donor) within the framework of a project. Particular attention should be given to project activities promoting good/best agricultural practice

For all of the above it is important to be clear about the difference between:

- a) the **policy instrument** that sets the framework for changing agricultural practice
- b) the **practical measures** that are encouraged or required at farm level and
- c) the **institutional arrangements** for implementing the various policy instrument and measures

For example, a typical regulatory instrument might be the existence of a “*Governmental Act for Soil and Water Protection*”. This might then use various measures to restrict the activities of farmers, such as:

- the prohibition of all fertilizer and manure application in water protection zones
 - limits on quantity of total fertilizer nitrogen application in all areas
 - limits on timing of manure application in all areas
- Compliance with these measures might then be enforced through the regional offices of a State Environmental Agency.

3. The current development of **EXISTING PROGRAMMES AND PROJECTS PROMOTING BEST AGRICULTURAL PRACTICE** for the reduction of water pollution by agriculture. By Best Agricultural Practice we mean “those practices and activities that reduce the risk of causing water pollution and that it is reasonable to expect a farmer to do as part of the normal day-to-day management of their agricultural enterprises”.

This may be known by different names in different countries – for example, in some countries it will be known as Good Agricultural Practice and may be published as a booklet or information leaflet for farmers.

4. The **OVERALL EFFECTIVENESS OF THE “POLICY MIX”** used to control water pollution caused by agriculture. This assessment needs to be very objective and should cover:
 - a) the **effectiveness of the policy instruments and practical measures** being implemented – do they match the main water pollution problems (nutrients, farm wastes, pesticides and soil erosion)? Do they target all necessary enterprises? Are there any gaps in implementation? What is the level of compliance by farmers? Are the regulations effectively enforced by the responsible authorities?
 - b) the **effectiveness of the institutional arrangements** that are operating - including
 - are the institutions effectively organized to implement policies and practice for agricultural pollution control?
 - do the relevant institutions have appropriate power and authority?
 - are sufficient resources allocated to the relevant institutions?

It is often observed that environmental legislation in the DRB countries is very well developed and sets high standards of environmental protection, but is not very effective because it is very poorly enforced. You should not hesitate to make conclusions such this if it is appropriate.

In order to assist you with reviewing the situation in your own country we have prepared a simple questionnaire that you can complete directly on the following pages.

Please use the format of this document in order to ensure that we can edit your review as easily as possible whilst preparing our final report.

Finally – and very importantly - please note that you should only review those policies, programmes and projects etc that are directly relevant to the Danube River catchment area in your country. For

example – whilst all national legislation is likely to be relevant, any area specific legislation that does not include territory of the Danube River catchment area will not be relevant.

Please contact by e-mail if you need any more information (e.g. maps) on the regions of your country that form part of the Danube River catchment area

We would be very grateful if you could please return your completed review to Jaroslav Prazan by e-mail before FRIDAY 20 JUNE, 2003

If you have any comments on the methodology we are using for this review, or if you need any further information or explanation, please do not hesitate to contact us by e-mail

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May 2003

Annex 2

Bosnia & Herzegovina

2 Bosnia & Herzegovina

2.1 Federation of Bosnia & Herzegovina

POLICY REVIEW QUESTIONNAIRE

Name of Expert(s)	Prof. Dr Hamid Custovic
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2.1.1 Policy Strategy and Objectives

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	No
Description of strategy:	
Policy objectives:	
Farm wastes – manure and slurry?	No
Description of strategy:	
Policy objectives:	
Pesticides?	No
Description of strategy:	
Policy objectives:	
Soil erosion?	No
Description of strategy:	
Policy objectives:	

2.1.2 Policy Instruments, Measures and Institutional Arrangements

2.1.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?

Water Law, Water Protection Law (adopted but not yet published in Official Gazette)

- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?

No.

- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?

Agricultural pollution is addressed within Water Law and Law on Water Protection

- What are the key water pollution issues that the regulatory instruments address?

Point source pollution, soil erosion and restriction on the use of fertilizers and agents for plant protection

- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?

According to the new Water Protection Law, responsible bodies may limit, regulate or even prohibit the use of artificial fertilizers, natural manure and agents for plant protection.

The responsible Minister shall establish a code of good agricultural practice in order to reduce water pollution by nitrates and plant protection agents. The implementation of good agricultural practice will be obligatory in vulnerable zones.

F B&H has not yet established requirements and restrictions that farmers are required to comply with. When the new law enters into force it is expected that the relevant authorities shall adopt sub-laws in order to implement new Law. In the sub-laws the requirements and restrictions will be established for the farmers to comply with.

What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

In the Federation of B&H the responsible institutions are the following: Federal Ministry of Physical Planning and Environment; relevant cantonal ministries of environment; Federal Ministry of Agriculture, Water Management and Forestry; relevant cantonal Ministries of Agriculture, Water Management and Forestry.

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation¹	General Reg.?	Specific Reg.?	Pollution Issue²	Farming Practices Required/ Restricted by Regulatory Instruments³	Level of Implementation & Enforcement⁴	Reasons for Poor Implementation and/or Enforcement⁵
Water Law	✓		Point Source pollution; Soil Erosion	No	3	This piece of legislation is not specifically focused to nutrients, farm wastes and pesticides, but rather to water protection in general.
Water Protection Law	✓		Restriction on the use of fertilizers and agents for plant protection	No. A code of good agricultural practice will be drafted in order to regulate these issues.	3	Lack of sub-laws; the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with. After adoption of the relevant sub- laws, the problem could be that farmers will not be able to pay imposed penalties for breaking laws.

¹ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

² Nutrients, farm wastes, pesticides or soil erosion

³ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

⁴ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

⁵ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Institutional Arrangements

Institution/Organization	Responsibility	Capacity for Implementation of Regulatory Instruments ⁶	Reasons for Any Lack of Implementation Capacity ⁷
Federal Ministry of Agriculture, Forestry and Water Management	<p>Dpt. of agriculture: legislative; inspection; export/import of plant species; fitocertification; pesticides import, pest control, technical-economical implementation of primary production; applying of science in agriculture; stimulation of farmer organization; soil conservation and protection; increasing of soil fertility; strategic planning in agriculture; co-ordination in project implementation.</p> <p>Dpt. of water management: legislative; inspection; water resources management; flood protection; water protection against pollution; sewage system and waste water treatment; concession on public water use; approval for use of water and discharge of polluted water; organization and co-ordination of strategic development targets; co-ordination of project implementation of federal significance; preparing for adopting of international agreements; inter-entity and international co-operation.</p>	3	Lack of adequately trained staff; lack of financial resources; lack of policy-making experience; poor organization and management

⁶ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁷ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Relevant Cantonal Ministries of Agriculture, Forestry and Water Management	Responsibilities are the same as for the federal ministry. The jurisdiction is divided between the cantonal and federal ministries.	3	Lack of adequately trained staff; lack of financial resources; lack of policy-making experience; poor organization and management
Federal Ministry of Physical Planning and Environment	Department for environmental protection: legislation, strategy and policy in filed of environmental protection	3	Lack of adequately trained staff; lack of financial resources; lack of policy-making experience; poor organization and management
Relevant Cantonal Ministries of Environment	Responsibilities are the same as for the federal ministry. The jurisdiction is divided between the cantonal and federal ministries.	3	Lack of adequately trained staff; lack of financial resources; lack of policy-making experience; poor organization and management

2.1.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?

The following instruments are used:

Water protection charges and fines, regulated by the Water Law and the Decision on the rates and amounts of special water charges of the Federation B&H.

Special water charges for water protection are paid by legal entities, and physical entities who during their work and activities discharge waste and harmful matters onto agricultural or other land, thus polluting water directly or indirectly. Obligators of payment for water protection are also buyers of artificial fertilizers and chemical agents for the protection of plants.

There is a section on fines in the Water Law elaborating amounts that are imposed on legal and physical entities if they discharge waste water or hazardous and harmful matters into a public water resource, onto the agricultural and forested land, before they obtain water management permission or act contrary to the water management permit.

- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?

Economic instruments in FB&H are focused only to punishing legal and physical entities for violating Water Law as referred to chapter “Penalty Provisions” - Article 217. (see point above).

- What are the key water pollution issues that these economic instruments address?

These economic instruments address only generally water protection issues, including the reduction of water pollution.

- What are the farming practices that are encouraged/discouraged by the economic instruments used?

There are no economic instruments used to encouraged/discouraged the farming practices.

- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ⁸	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ⁹	Reasons for Poor Implementation ¹⁰
Water protection charge	✓		General water pollution	The EI is not specifically focused to any farming practice. Buyers of fertilizers and chemical agents for plant protection are charged per unit of fertilizer and chemical agent sold: they are therefore encouraged to reduce the amount of these chemicals bought and used.	3	Lack of financial resources; lack of policy-making experience; poor organization and management, inadequate mechanisms for the control and monitoring of the agricultural pollution
Penalties	✓		General water pollution	The EI is not specifically focused to any farming practice	3	<ul style="list-style-type: none"> - Inadequate institutional framework and capacity necessary for the implementation of legislation, - Inadequate monitoring and control of the agricultural pollution

⁸ Nutrients, farm wastes, pesticides or soil erosion

⁹ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹⁰ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Institutional Arrangements

Institution/Organization	Responsibility	Capacity for Implementation of Economic Instruments ¹¹	Reasons for Any Lack of Implementation Capacity ¹²
Ministry for Agriculture, Water Management and Forestry	Institution in charge for implementation of the of economic instrument	3	Lack of financial resources; lack of policy-making experience; poor organization and management
Public Water Management Companies	Organizations in charge for the collection of revenues arising from the economic instruments	3	Lack of financial resources; lack of policy-making experience; poor organization and management
The Financial police and Federal and cantonal water management inspections	Institutions in charge for the control of the implementation of economic instruments	3	Lack of policy-making experience; poor organization and management

2.1.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?

No

- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

¹¹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹² Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue¹³	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake¹⁴	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	No			3	
Technical assistance by State advisory service	No			3	
Technical assistance by providers of farm inputs	No			3	
Education and awareness-raising campaigns	No			3	
Demonstration farms	No			3	
Learning by sharing of ideas among the farmers	No			3	
Publications and other information materials	No			3	
Training	No			3	
Other (please describe):				3	

¹³ Nutrients, farm wastes, pesticides or soil erosion

¹⁴ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Institutional Arrangements

Institution/Organization	Responsibility	Capacity for Implementation of Advisory/Information Instruments ¹⁵	Reasons for Any Lack of Implementation Capacity ¹⁶
No institution is responsible			

2.1.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organizations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

¹⁵ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁶ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Project	Project Budget	Pollution Issue ¹⁷	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ¹⁸
Strengthening of Diffuse Source Pollution Control in FB&H	400,000 €	Nutrients (nitrogen, phosphorus)	The output of the project is a handbook on best management practices to reduce diffuse pollution. Sections of the handbook are dedicated to the agricultural practices.	The project is still ongoing, so the results cannot be measured yet. There is a strong dissemination component in the project, aimed to promote best management practices to reduce diffuse pollution on a voluntarily basis.

Institutional Arrangements

Project	Institution/Organization	Responsibility
Strengthening of Diffuse Source Pollution Control in FB&H	LIFE-Third Countries program of the EC;	The project is funded by LIFE-Third Countries program and HEIS. The project is implemented by HEIS.

¹⁷ Nutrients, farm wastes, pesticides or soil erosion

¹⁸ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

2.1.3 Existing Programmes and Projects Promoting “Good/Best Agricultural Practice”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

The concept exists as such. Legal framework to enforce the concept is not in force yet. Best agricultural practices are applied voluntarily by the farmers, although very occasionally.	
Yes.	
Crop nutrients	Yes
Animal wastes	No
Pesticides	Yes
Soil Erosion	Yes
Other (please specify)	
There is no code of good agricultural practice issued by authorities yet. Within the framework of the project entitled "Strengthening of Diffuse Source Pollution Control in FB&H" a handbook on best management practices to reduce diffuse pollution has been printed.	
The project entitled "Strengthening of Diffuse Source Pollution Control in FB&H", financed by the LIFE-Third Countries program of the EC.	

2.1.4 Summary and Assessment of the Effectiveness of the “POLICY MIX”

Please fill in the following table to summarize the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for **each farming practice that is listed**, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 meters of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
None of the practices has been promoted by the regulatory, economic, advisory/ information and project-based activities in the field yet.							

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

The listed policy instruments are still not being implemented in FB&H. It is expected to have the Water Protection Law in force soon, which will be the legal basis for the promotion and enforcement of the instruments. In order to implement the instruments, the sub-laws have to be drafted first though. Only then the instruments will be applicable and their effectiveness will be evaluated.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

See answer above.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

See answer above.

2.1.5 Information Sources

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

- Water Law (“Official Gazette of the Federation of Bosnia and Herzegovina, No. 18/98
- Water Protection Law (adopted, but not yet published)
- METAP/World Bank report: Urgent Strengthening of Environmental Institutions in Bosnia and Herzegovina, December 2002
- Interim Report of the project entitled “Strengthening of Diffuse Source Pollution Control in FB&H”
- Hydro-Engineering Institute Sarajevo (HEIS) experts: Andja Kalem-Peric, Ramiza Alic, Admir Ceric

2.2 Republic of Srpska

POLICY REVIEW QUESTIONNAIRE

Name of Expert(s)	Dr. Mihajlo Markovic, Docent
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2.2.1 Policy Strategy and Objectives

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	No
Description of strategy: Policy objectives:	
Farm wastes – manure and slurry?	No
Description of strategy: Policy objectives:	
Pesticides?	No
Description of strategy: Policy objectives:	
Soil erosion?	No
Description of strategy: Policy objectives:	

2.2.2 Policy Instruments, Measures and Institutional Arrangements

2.2.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation¹⁹	General Reg.?	Specific Reg.?	Pollution Issue²⁰	Farming Practices Required/ Restricted by Regulatory Instruments²¹	Level of Implementation & Enforcement²²	Reasons for Poor Implementation and/or Enforcement²³
REPUBLIC OF SRPSKA						
Water protection law <i>Official Bulletin – SG of RS No. 53/2002, § 1.</i>	Yes		Nutrients, farm wastes, pesticides. soil erosion	See below	See below	See below
§ 24.	Yes		Slurry, farm wastes,	Prohibition of discharges farm wastes into underground water, lakes, fish pond and irrigation systems.	2	That the pollution issue is not actually considered a serious enough problem bay the implementing authorities to be concerned with ; the farmers do not believe they cause any decline in water quality decline
§ 25.	Yes		Fertilisers, pesticides nitrates	Prohibition of pesticides and fertilisers application in specified areas	2	The farmers are not informed about regulations, and sanctions are not in practice enough.
§ 28.	Yes		Nutrients, farm wastes, pesticides	Prohibition of pesticides and fertilisers transfer and storage in specified areas	2	That the pollution issue is not actually

§ 29.			Manure	Prohibition the building Farm and Enterprises	2	Lately that is beginning to be practice and farmers conscience going in direction of solving that problems.
Law about Agricultural Land, Official Bulletin - SG of RS, No. 13/1997 § 8.	yes		Erosion	Measures for erosion reducing	2	Low application in this field are slowly taking their place
§ 10.	yes		Erosion, Mineral Fertilisers, Pesticides	Getting soil for production organic farming, Level of erosion	1	This problem should be considered in bases that does not exist
§ 25.	yes		Harmful substances	Prohibitions of discharges of harmful substances in soil	2	Farmers irresponsibility and imprecise of inspections bodies
§ 26.	yes		Harmful substances	Finding of harmful substances in soil and irrigation water	2	Soil and water analyses are rare in use because of farmers uninterested and poor.
§ 27.	yes		Mineral Fertilisers and Manure	Recommendation of mineral fertilisers and manure norm due to arable farming and fruit growing	2	Farmers are poor to pay their analyses, but fertilization analyses should be performed by ministry before selling.
§ 46.	yes		Slurry Harmful substances	Regular control of water quality	2	This is related on enterprises that has irrigation systems which all not in function
Environment protection law, <i>Official Bulletin</i> – SG of RS No. 53/2002, § 13.	yes		Erosion Harmful substances Mineral Fertilisers pesticides	Restriction on the method, limit of manure application Mineral Fertilisers and pesticides	1	Slowly returning land for agricultural purposes, insufficient care about pollution in that way

§ 14.	yes		Waste water	Prohibition of discharges waste water and sewerage systems without refining	1	This problem is more related on enterprises
Waste management law <i>Official Bulletin</i> – SG of RS No. 53/2002, § 6	yes		Animal waste Liquid waste	Preventive measures, environment risks reduce	1	Farmers does not have technical and technological regarding equipment and experience.

¹ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it.

¹ Nutrients, farm wastes, pesticides or soil erosion

¹ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

¹ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

¹ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Institutional Arrangements

Here we should emphasise that Republic of Srpska bring in 2002 set of laws: Nature protection law, Environment protection law, Waste management law, Water protection law, Land and fertilisers law are still under construction. We considered that time dimension is one of causes of poorly application of laws, as well as bad coordination between institutions and farmers.

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ²⁴	Reasons for Any Lack of Implementation Capacity ²⁵
REPUBLIC OF SRPSKA			
Parliament RS	Bring laws, Adopt necessary strategy and plans for environment protection. Establishing authorisation Government and local autonomy agency. Approve funds related to conduct of protection and their control.	2	Long procedure bringing of law and plans
Government RS	Performing of law, regulation and general acts, direct and coordinate work of ministry for environment protection. Bring out rule books, instructions, decision for law performing. Suggesting to Assembly strategy of environment protection as well as report of environment state. Implementation of rights and performing international obligations. Carry out program about water and land investigation on dangerous substances.	2	Lack of adequately trained staff Lack of financial resources

²⁴ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

²⁵ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

<p>Ministry of physical planning civil engineering and Ecology of RS</p>	<p>Measures and activities consolidation on field of water and environment protection. Control work of local autonomy agency. Analyse and evaluate environment state, prepare laws and regulations. Participate on program and plans production related on use of natural resources. Information and administration system management. Perform environment protection labours. Gives ecological permits. Monitoring application of law regulative.</p>	<p>2</p>	<p>Lack of adequately trained staff lack of financial resources</p>
<p>Ministry of Agriculture Forestry and Water Management of RS</p>	<p>Provide material for protection and use agricultural land. Gives approval for use of agricultural land for other purposes. Brings regulation for investigation of land fertility and fertilizer quality.</p>	<p>2</p>	<p>Lack of adequately trained staff Lack of financial resources</p>
<p>Advisory agency for environment protection of RS</p>	<p>Gives advices to Government and Minister. Participate in evaluation of strategic appraisal of environment, and draft which is base for appraisal.</p>		
<p>Local agency</p>	<p>Gives ecological permits. Perform labour and tasks authorised form water and land. Gives agreement for use agricultural land in other purposes with ministry argument. Supervision over performing of laws over agricultural and ecological inspectors.</p>	<p>1</p>	<p>Lack of staff Poor organisation and management; Poor co-operation with NGO sector</p>

Coordination committee for water and environment protection.	Coordination between ministries of entities (RS and FBH)	n.a.	n.a.
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Note: n.a. means not available

We would like to emphasise that Republic of Srpska adopted set of laws in 2002: Nature protection law, Environment protection law, Waste management law, Water protection law. Law about Agricultural Land adopted in 1997 (there is a new draft version, extended, which is in “public discussion” now. Law about fertilisers is under construction now (draft version). We considered that time dimension is one of causes of poorly application of laws (passed short time after adoption of law-sets and their application in practice), as well as bad coordination between institutions and farmers.

2.2.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ²⁶	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ²⁷	Reasons for Poor Implementation ²⁸
REPUBLIC OF SRPSKA						
Law about Agricultural Land SGRS 13/9 Punishment regulation Prohibition of use	yes		Harmful substances fertilisers fertilisers	Prohibition and punish discharges of manure and harmful waste in water and irrigation systems Prohibition of use fertilisers that does not suit the standards	3	The economic incentives offered to farmers are too low to encourage uptake
Environment protection law <i>Official Bulletin</i> – SG of RS No. 53/2002, Payments for damages Responsibility	yes		Dangerous and harmful substances	Measures for strengthen of conscience of farmers. Directing on right storing of waste and slurry.	3	The administration lacks the financial resources to fully implement an incentive or grant scheme
Water protection law, <i>Official Bulletin</i> – SG of RS No. 53/2002, Punishment regulation	yes		Waste water Fertilisers and pesticides	Prohibition of application fertilizers and pesticides on bay side Prohibition of discharges farm waste	2	n.a.

²⁶ Nutrients, farm wastes, pesticides or soil erosion

²⁷ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

²⁸ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Institutional Arrangement

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ²⁹	Reasons for Any Lack of Implementation Capacity ³⁰
REPUBLIC OF SRPSKA			
Budget of RS Fond for environment protection	Support in implementing of tasks and obligations to international community. Damage control which are not under responsibility. Direct interventions	3	Fond founded in 2002, so their activities are not important (inactive yet); lack of policy-making experience
Republic Inspections (in front of Ministry of Agriculture, Forestry and Water Management)	Supervision under water state. Application of emission standards and permits. Supervision over conduct of legal and physical bodies according to law	3	Poor deposit influx from fond (lack of finances); inadequately trained staff
Public attorney	Charges for application	3	Lack of harmonization between inspections and public attorney
Local authority agencies Inspection services	Performing jobs and tasks from their competitions.	3	Poor organization and management

²⁹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

³⁰ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

2.2.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/ Information Instrument	Yes/No	Pollution Issue ³¹	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake ³²	Reasons for Poor Implementation and/or Uptake
REPUBLIC OF SRPSKA					
Technical assistance by independent advisory service	Yes	Nutrient Farm waste pesticides	Regular application of fertilisers, pesticides, periods and time of treatment, selection of preparations and fertilisers.	2	Low level of advices on field fertilisers, pesticides and manure pollution
Technical assistance by State advisory service	Yes	Nutrient Farm waste Pesticides fertilisers	Regular application of fertilisers, pesticides, periods and time of treatment, selection of preparations and fertilisers.	2	Low level of advices on field fertilisers, pesticides and manure pollution and unpractical of influence on farmers practice
Technical assistance by providers of farm inputs	Yes	Fertilisers, Farm waste	Farmers education by booklets and information leaflet for regular application fertilisers and pesticides	3	Lack of adequately trained staff

³¹ Nutrients, farm wastes, pesticides or soil erosion

³² For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Education and awareness-raising campaigns	Yes	Nutrient Farm waste Pesticides fertilisers	Techniques of application pesticides and fertilisers	3	Lack of interests in this practice
Demonstration farms	Yes	Nutrient Farm waste Pesticides fertilisers	Demonstration of techniques application pesticides on experimental field	3	Poor investment funds
Learning by sharing of ideas among the farmers	Yes	Nutrient Farm waste pesticides	Application fertilisers and preparations on experience	3	Insufficient cooperation societies and ministry
Publications and other information materials	Yes	Pesticides	Regular application, permitted doses	2	Poor work out data about agricultural water pollution
Training	Yes	Pesticides	Regular application of pesticides	3	Poor investments funds
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ³³	Reasons for Any Lack of Implementation Capacity ³⁴
REPUBLIC OF SRPSKA			
Government of RS	Management, make a decision and financial resources	2	lack of financial resource, Lack of policy-making experience
Agriculture Extension service	Perform training and setting demonstration experiments	3	Lack of adequately trained staff, lack of financial resources
Society for Ecology, "Ecos" BL	Academic level following development of ecology science through professional literature, organizing symposiums, conferences and pilot projects	3	Poor cooperation between societies and farmers, poor application in practice

2.2.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

³³ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

³⁴ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Project	Project Budget	Pollution Issue ³⁵	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ³⁶
REPUBLIC OF SRPSKA				
Researching of heavy metals, pesticides presence and radioactivity in “Lijevece field”, eco-system, Ministry of Science and Technology of RS	5,000 euro	Pesticides	Increase or reduce pesticides quantity in dependence on their presence in soil	Project is in realisation, results are unknown yet.
Stimulants of enterprising in fruit growing and truck farming field in Tuzla-Banja Luka region Integral production, DEZA Government of RS	About 2,000,000 euro	Agrochemical waste	Integral access to agricultural production	Current project, phase 2 (total duration 3 years)

³⁵ Nutrients, farm wastes, pesticides or soil erosion

³⁶ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

Institutional Arrangements

Project	Institution/Organisation	Responsibility
REPUBLIC OF SRPSKA		
Researching of heavy metals, pesticides presence and radioactivity in “Lijevice field”,eco-system, Ministry of Science and Technology of RS	RS Government Faculty of Agriculture Banja Luka	Financial resources Researching, analyses and conclusions
Stimulants of enterprising in fruit growing and vegetable production in Tuzla-Banja Luka region, Integral production	RS Government Faculty of Agriculture Banja Luka	Financial resources Education and control

2.2.3 Existing Programmes and Projects Promoting “Good/Best Agricultural Practice”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

REPUBLIC OF SRPSKA	
NO, not yet	
Crop nutrients	
Animal wastes	
Pesticides	
Soil Erosion	
Other (please specify)	
Farmers are informed by booklets and information leaflets, as well as trainings, but it is not enough for them at this moment.	
Partially, yes, but only through some programmes and projects of farmers’ training about the best way for individual crop growing (e.g. apple fruit growing, maize growing. These programmes are mainly connected with some areas (not at the state level or entity levels).	

2.2.4 Summary and Assessment of the Effectiveness of the “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for **each farming practice that is listed**, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
REPUBLIC OF SRPSKA							
None of the practices has been promoted by the regulatory, economic, advisory/information and project-based activities in the field yet.	Not available	Low - There is no On-farm Measure due to lack of any strategy police on entity and state level and lack of financial resources on local level.	No	No	No	No	3 Low potential to reduce water pollution.

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

There are not reported relevant policies to address the above mentioned issues.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?
- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

2.2.5 Information Sources

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

REPUBLIC OF SRPSKA information sources (Mihajlo Markovic):

1. MEDIUM-TERM (1999.-2006) STRATEGIC PROGRAM FOR RECOVERY & RECONSTRUCTION AND SUSTAINABLE DEVELOPMENT OF AGRICULTURE IN REPUBLIC OF SRPSKA (ASP-RS PROGRAM). Prepared by The Ministry of Agriculture, forestry and Water Management With the Assistance of FAO, March 1999.
2. *Water protection law, Official Bulletin* – SG of RS No. 53/2002.
3. Law about Agricultural land, *Official Bulletin* – SG of RS No. 13/1997.
4. Environment protection law, *Official Bulletin* – SG of RS No. 53/2002.
5. Waste management law, *Official Bulletin* – SG of RS No. 53/2002.
6. Meeting with Prof. Dr. Nikola Micic, Vice-dean of Faculty of Agriculture, Banja Luka, President of Society for Fruit Growing Science of Republic of Srpska.
7. Meeting with M.Sc. Bozo Vazic, Extension Service of RS.
8. Meeting with M.Sc. Slavko Radanovic, Agricultural Institute, Banja Luka, RS.
9. Meeting with Minister Rodoljub Trkulja, M.Sc., Ministry of Agriculture, Forestry and Water Management of RS.
10. Meeting with Milos Nozinic, B.Sc. Agricultural institute, Banja Luka.
11. Meeting with Drago Spremo, B.Sc. Agricultural institute, Banja Luka.
12. Reports from “PD Semberija” Bijeljina farm representatives.
13. Reports from Institute for Statistics of RS, Banja Luka.
14. Reports from customs Administration of RS, Banja Luka.
15. Meeting with Dr Rodoljub Oljaca, Faculty of Forestry, Banja Luka

Annex 3

Bulgaria

3 Bulgaria

POLICY REVIEW QUESTIONNAIRE

Name of Expert(s)	ASSOCIATION FOR INTEGRATED RURAL DEVELOPMENT
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3.1 Policy Strategy and Objectives

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	No
<p>Description of strategy:</p> <p>No overall strategy exists. Some regionally based strategies and action plans have been developed:</p> <ul style="list-style-type: none"> • Strategic action plan for the rehabilitation and protection of the Black sea – to reduce the nutrient inputs to the Black sea from riverine and land-based sources. Therefore national action plans were developed – aimed at reducing nitrogen pollution and phosphorous pollution by the year 2010 with respect to the levels in 2000 • Strategic action plan for Danube river basin (adopted in 1994) <p>Policy objectives:</p>	
Farm wastes – manure and slurry?	No
<p>Description of strategy:</p> <p>National Strategy for protection of the environment (action plan 2000-2006)</p> <p>Strategic objectives (4.3 Develop environment friendly agriculture and stockbreeding)</p> <p>Policy objectives:</p> <p>Training farmers on implementation of environmental practices in the agriculture and stock breeding, including dissemination of guidebooks and information materials</p> <p>Financial assistance for introduction of environmental friendly technologies in agriculture</p>	

Pesticides?	No
<p>Description of strategy:</p> <p>There is no overall strategy for pesticides in Bulgaria. However the Environmental Executive agency of the Ministry of Environment has developed National Programme - Action plan for management of POPs (that also include chlorinated pesticides). Also the maximum acceptable levels are developed.</p> <p>Policy objectives:</p>	
Soil erosion?	No
<p>Description of strategy:</p> <p>National Long-term erosion control programme (NLECP)-, but all of the activities have been suspended since 1989. It recommended erosion prevention measures based on the land capability evaluation and the estimated average soil loss rates. The NLECP made provisions for design of erosion control measures at a level of catchment, administrative territorial unit, or area of co-operative farm</p> <p>Policy objectives:</p> <p>No overall strategy and policy to guarantee efficient protection of the soils from erosion. Separate provisions can be find out in several regulative acts and in the Law on Protection of the agricultural lands, but they are insufficient to assure the land protection from erosion degradation</p>	

3.2 Policy Instruments, Measures and Institutional Arrangements

3.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation ³⁷	General Reg.?	Specific Reg.?	Pollution Issue ³⁸	Farming Practices Required/ Restricted by Regulatory Instruments ³⁹	Level of Implementation & Enforcement ⁴⁰	Reasons for Poor Implementation and/or Enforcement ⁴¹
Water act	√		Nutrients Pesticides Farm wastes	It is prohibited: <ul style="list-style-type: none"> the storage of pesticides and waste on river banks and in coastal flooded areas the construction of cattle-breeding farms on river banks and in coastal flooded areas the disposal of fertilisers and organic manures (including any associated “packages” e.g. fertiliser bags) directly into surface waters or abandoned wells the washing-out of “packages, special uniforms and equipment” associated with fertiliser application in any surface water 	2	The administration controlling the Act implementation is not sufficient on national and regional levels

³⁷ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

³⁸ Nutrients, farm wastes, pesticides or soil erosion

³⁹ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

⁴⁰ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

⁴¹ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

				<ul style="list-style-type: none"> • applying fertiliser in the sanitary protection zone around water sources used for drinking water 		
Act on protection of soil from contamination	√		It refers to all potential pollutants including the ones from agricultural origin.	There are no concrete forbidden farming practices or restrictions.	3	The act is very old and not relevant to the new situation. It does not offer any specific restrictions
The act on protection of the agricultural land	√		Nutrients Pesticides Farm wastes	The usage of pesticides, mineral fertilizers and biologically active ingredients, that have not received toxicological registration from the respected specialized commissions and committees of the Ministry of agriculture and forests, ministry of health and Ministry of waters and environment is prohibited	2	Controlling and monitoring authorities are not performing sufficient control
Act on protection of the agricultural lands			Nutrients Pesticides Farm wastes	Waters that contain dangerous and harmful wastes or substances above the maximum permitted levels could not be used for irrigation purposes	2	Insufficient control

Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources		√	Nutrients Farm wastes	<p>The good agricultural practice is voluntary applied but the farmers are obliged no to:</p> <ol style="list-style-type: none"> 1. fertilize in belt II of sanitary security area of water sources for water drink supply where the contents of nitrates exceed 35 mg/l; 2. stock organic and mineral fertilizers in the lands adjacent to water sites or rivers or in the lands of coastal flooded river strips; 3. deposit oddments of fertilizers and packages in the superficial waters or abandoned draw-wells; 4. wash in the rivers, dams and other superficial water sites packages, special clothing and equipment related to the fertilization <p>The farmers are obliged to apply the validated agricultural practices for the territories of sanitary security areas around the water sources and facilities for water drink supply and around the water sources of mineral springs, intended for curative, prophylactic, drinking and hygienic purposes.</p>	Not available	
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Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ⁴²	Reasons for Any Lack of Implementation Capacity ⁴³
Ministry of Environment and Water Ministry of Agriculture and Forestry Ministry of Health	<u>Water act</u> They issue regulation for protection of water from pollution of nitrates from agricultural sources	2	Not available
Ministry of Environment and Water Ministry of Agriculture and Forestry	<u>Water act</u> They issue regulation for the quality of waters used for irrigation	2	Not available
Ministry of Regional Development and Public Works Ministry of Agriculture and Forestry Ministry of Energy and Energy Resources	<u>Water act</u> They control the situation of the water basins and water systems and equipment according to their competence	2	Not available
Ministry of Environment and Water	<u>Act on protection of soils from contamination</u> It controls the protection of soils from contamination	2	Not available

⁴² For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁴³ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Ministry of Agriculture and Forestry	<p><u>Act on protection of soils from contamination</u></p> <p>It provides the preservation of soils used for agricultural purposes</p>	2	Poor co-ordination between the responsibilities of the Ministry of Environment and Water and the Ministry of Agriculture and Forestry, that leads to lack of control
Ministry of Health Ministry of Agriculture and Forestry	<p><u>Act on protection of soils from contamination</u></p> <p>It issues regulations, ordinances and sanitary laws and regulations</p>	2	Not available
Ministry of Agriculture and Forestry	<p><u>Act on protection of agricultural lands</u></p> <p>It provides to the land owners and the users of agricultural land official information on:</p> <ol style="list-style-type: none"> 1. potential risks for deterioration of fertility, technological ecological and economic quality of the agricultural land due to land degradation and 2. protection of surface layer and its ecological functions 3. obligatory restrictions for the use of agricultural lands. 4. registered and approved for usage pesticides and fertilizers ,their sanitary norms for application as well as the products and ingredients that are prohibited 5. quality of the irrigation waters, sanitary norms, maximum permitted levels for their application as well as the waters that are prohibited to be used for irrigation of agricultural lands. 	2	Not available

	<p>6. anti-erosion crop rotation for the territories with potential erosion risk; It maintains information system for agricultural soil resources. In the information system a special register for agricultural land with potential risk of erosion or pollution as well as short term and long term programmes for improving the fertility of the agricultural lands and their preservation from erosion and pollution. It imposes obligatory restrictions for the usage of agricultural lands when deterioration of the ecological functions and the soil surface layer, surface and ground waters quality has been observed It recommends forests melioration and hydrological measures that protect surface layer from water and wind erosion.</p>		
<p>Organizations that maintain and provide waters for irrigation</p>	<p><u>Act on protection of agricultural lands</u> They make periodical checks for water quality and when dangerous substances or residues over the maximum permitted levels are found they inform the users and stop the water supply until the necessary quality is restored.</p>	<p>2</p>	<p>Not available</p>

<p>Ministry of Environment and Water</p>	<p><u>Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources</u> Determines waters in water sites or their parts that are polluted or endangered by pollution Updates every fourth years the information concerning waters in water sites or their parts that are polluted or threaten by pollution as well as the information about sensible areas. After the evaluation the Minister of Environment and Waters additionally determines or excludes already determined water sites or their parts where the waters are polluted or threaten by pollution and sensible areas Determines as sensible areas the fields where the waters in water sites or their parts that are polluted or endangered by pollution are polluted with nitrates originating from agricultural sources through leaking or draining Prepares reports for changes in the sensitive regions Validates programs for limitation and elimination of pollution</p>	<p>2</p>	<p>According to the Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources, the sensible areas contributing for water pollution should be determined by the Ministry of Environment and Water within the term of 2 years following the coming into effect of the Ordinance.</p> <p>The Regulation was issued on 16.10 2000 and the vulnerable zones should have been determined till October 2002. The zones are still under definition.</p>
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	<p>Organizes monitoring of nitrate contents in the waters through the national Water monitoring system and provides to the Minister of Public Health an information concerning the nitrate contents in the superficial waters intended for water consumption supply</p> <p>Organizes an examination of eutrophication situation of superficial waters and sea coastal waters water eutrophication conditions on each 4 years</p> <p>Specifies additional measures or more strict measures for water protection</p> <p>Prepares reports for water pollution with nitrates originating from agricultural sources</p>		
<p>Ministry of Agriculture and Forestry</p>	<p><u>Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources</u></p> <p>Prepares and validates codes for good agricultural practice according to the defined requirements</p> <p>Prepares and validates programs for limitation and elimination of pollution and organizes control of their implementation</p> <p>Prepares and validates programs for training and information of farmers</p> <p>Prepares and provide to the Minister of Environment and Waters an information concerning:</p>	<p>2</p>	<p>The Ministry of Agriculture and Forestry has to prepare Codes for Good agricultural practices. They are in the process of development, according to the acquis communautaire it has to be done till the end of 2004</p>

	<p>a) good agricultural practice;</p> <p>b) nitrate contents in the waters intended for irrigation;</p> <p>c) following conditions for the determination of sensible areas:</p> <ul style="list-style-type: none"> • periods during which the dispersion of fertilizers is prohibited • dispersion of fertilizers over sloppy terrain • dispersion of fertilizers over water damped, flooded, frozen or snow covered terrains • conditions of fertilizer dispersion near to water streams • volume and characteristics of depots for stocking of organic fertilizers including measures preventing pollution of underground and superficial waters with liquids originating from depots or from stocked fodder • conditions and order of fertilizer dispersion including frequency and way of dispersion of mineral and organic fertilizer solutions in order to maintain at a reasonable level the loss of solution nutritive compositions 		
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	<p>Prepares and provides to the Minister of Environment and Waters and the Minister of Public Health an information concerning the agricultural practice on the territory of sanitary security areas around the water sources, facilities for water consumption supply and mineral water sources used for healing, prophylactic, drinking and hygienic purposes, as well as concerning the implementation of programs for limitation and elimination of pollution</p> <p>Entrusts the development of water monitoring programs, included in the programs for pollution limitation and elimination</p> <p>Implements monitoring of nitrate contents in the waters intended for irrigation</p> <p>Collects and analyses concerning the implementation of codes for good agricultural practice and provides an information in view to the fulfilment of international engagements of Government in this field</p>		
<p>Ministry of Health</p>	<p><u>Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources</u></p> <p>Implements the monitoring of nitrate contents in waters intended for drinking consumption</p> <p>Provides to the Minister of</p>	<p>1</p>	

	Environment and Waters an information for drinking water sources which nitrate contents exceed the norms.		
Basin directorates	<p><u>Ordinance concerning the protection of waters from nitrate pollution originating from agricultural sources</u> Provides to the Minister of Environment and Waters data about polluted waters and vulnerable underground water sites where exists a risk of water pollution with nitrates originated from agricultural sources Carries out the examination of eutrophication situation of superficial waters and sea coastal waters water eutrophication conditions on each 4 years Implements the monitoring of waters in the water sites or their parts polluted or threatened by pollution with nitrates originating from agricultural sources Till determination of waters in water sites or their parts polluted or threatened by pollution, implements the monitoring of water nitrate contents in the places intended for quality control of superficial waters, used for water drink supply and in the places where the quality of underground water is close to the greater extent to the natural quality of waters in the relevant underground water site</p>	2	Water basin directorates were created last year and their staff is insufficient
Specialized companies	Implements the monitoring of sensible areas waters on the basis of contracts with persons which activities cause water pollution	3	Such companies do not exists since the vulnerable (sensitive areas are not determined yet)

3.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ⁴⁴	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ⁴⁵	Reasons for Poor Implementation ⁴⁶
Water act	Fine (from 5000 to 15000 BGN), app. (2500 -7000 EURO)		Nutrients Pesticides Farm wastes	Fine, or respectively estate sanction is imposed on natural or legal entity that pollutes the coastal areas, that could be potentially flooded and violates the following restrictions: 1. storage of pesticides, fertilizers pesticides, disposal and treatment of wastes 2. building of livestock farms; 3. construction of buildings	2	Not enough personal in the Regional inspectorates of environment and waters

⁴⁴ Nutrients, farm wastes, pesticides or soil erosion

⁴⁵ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

⁴⁶ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Act on protection of agricultural lands		Tax and credit preferences	Erosion	The land owners and land users have the right to certain tax or credit preferences when they apply: 1. the obligatory restriction for the usage of the agricultural lands; 2. the recommendations for preservation of the surface layer and its ecological functions; 3. antierosion agrotechnics; 4. systems for organic agriculture and agriculture with reduced use of pesticides and fertilizers; 5. projects for restoration and improvement of the fertility of the agricultural lands	3	Not available
Act on protection of agricultural lands	Fine from 120 to 2000 BGN (appr. 60 to 1000 EURO) for first violation for second violation- 240 to 4000 BGN (120 to 2000 EURO)		Erosion	The fine is imposed when certain activity that leads to damaging, pollution or land degradation is performed	3	Not available
Water protection act	Fine			Everyone who is responsible for dangerous soil changes (including pollution with pesticides, manure and mineral fertilizers, as well as soil degradation from water and wind erosion with its anthropogenic aspects) is obliged to restore by himself the normal quality and functions of the soil to such extent that it will not be dangerous for the human race permanently.	3	Insufficient control and monitoring

SAPARD measure Development of environmentally friendly practices and activities		Incentives (direct payments)		From the beginning of the next year the farmers are entitled to certain incentives for performing environmentally friendly practices and in certain regions. One of the conditions of the measures is compliance with codes for Good farming practice on the whole-territory of their farms	3	Still not implemented
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Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ⁴⁷	Reasons for Any Lack of Implementation Capacity ⁴⁸
Ministry of Environment and Water	To impose fines when the water act and the Environment protection act envisage them	2	Insufficient staff
Ministry of Agriculture and Forestry	To impose fines when the act for protection of agricultural lands envisage it	2	The administrative capacity at local level is insufficient and not well trained
SAPARD agency	To give incentives for the implementation of measure 1.3. development of environmentally friendly practices and activities	3	Still not accredited for implementation

⁴⁷ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁴⁸ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

3.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue ⁴⁹	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake ⁵⁰	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	Yes	Nutrients, farm wastes, pesticides	Organic farming	2	Only 2 or 3 independent NGOs are working in this field on regional level in certain municipalities
Technical assistance by State advisory service	Yes	Nutrients, farm wastes, pesticides	Recommended levels of applications of fertilisers and pesticides	1	Mainly conventional practices are recommended
Technical assistance by providers of farm inputs	No			3	
Education and awareness-raising campaigns	Yes	Nutrients, farm wastes pesticides	Best practices approaches	1	A few seminars dedicated to the application of best environmentally friendly practices are carried out

⁴⁹ Nutrients, farm wastes, pesticides or soil erosion

⁵⁰ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Demonstration farms	Yes	Nutrients, farm wastes, pesticides	Agri-environmental activities	1	An agri-environmental demonstration centre has been founded in Plovdiv Agricultural University
Learning by sharing of ideas among the farmers	yes	Nutrients, farm wastes, pesticides	Exchanges of experience between farmers, open days, etc...	1	Regionally done in certain regions
Publications and other information materials	Yes	Nutrients, farm wastes, pesticides		2	Not enough publications due to lack of funds

Training	Yes	Nutrients, farm wastes, pesticides		2	Lack of funds and strategies
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ⁵¹	Reasons for Any Lack of Implementation Capacity ⁵²
National agricultural advisory service	To provide support to the farmers in their farming activities	2	General training. In 2003 a twinning project that will train the advisors in implementing the environmentally friendly practices and activities is expected
NGOs (Bioselena, Agrolink, Green Burgas, Ecofarm, etc.)	Tom provide training to the farmers on the environmentally friendly agricultural practices and activities	2	Lack of funds, Done mainly on regional level

⁵¹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁵² Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

3.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

Project	Project Budget	Pollution Issue ⁵³	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ⁵⁴
<p>Bulgaria Wetlands Restoration and Pollution Reduction Project (WRPRP)</p> <p>“Farmer Transition Support Fund” (FTSF)</p>	<p>Total WRPRP budget \$ 13.28 mio USD, of which \$400,000 equivalent will be made available over 3 years period for the FTSF (starting in 2004)</p>	<p>Nutrients Farm wastes</p>	<p><u>Practices Encouraged</u></p> <p><u>Manure management</u> Improper storage of manure and organic wastes is recognized in the two project areas as a major source of groundwater pollution. The farmers will receive support for construction of manure storage facilities. They have to apply efficient manure management; to optimize the number of the livestock units per ha and the surface of the area on which the manure will be spread by limiting the amount of manure per ha; to observe a special period of time for spreading the manure on the field</p> <p><u>Organic farming</u> Low inputs of fertilizers and pesticides during the last decade provide good pre-conditions for the development of organic agriculture in the region. Support will be provided for organic production of fruits (orchards) and vegetables, herbs and essential-oil crops.</p> <p><u>Pasture and meadow management</u> The objective is to maintain and improve pastures and grasslands and to prevent the expansion of reed, shrubs and weeds; and/or to convert arable lands in the proximity of the restored wetlands into pastureland</p>	<p>The primary objective of the WRPRP is to restore critical priority wetlands in the Danube river basin and make use of the wetlands in riparian zones as nutrient traps; and to promote protected areas management and the sustainable use of natural resources.</p> <p>The FTSF is established in order to promote transition to environmentally-friendly agricultural practices and activities compatible with the conservation objectives of the protected areas over the long-term. The Fund provides investment grants to farmers. Minimum grant size \$ 300 USD; Maximum total grant per farmer for the whole period \$ 30.000.</p> <p>However, the Operational manual for the FTSF is still not finalized so changes may occur.</p>

⁵³ Nutrients, farm wastes, pesticides or soil erosion

⁵⁴ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

<p>PHARE Twinning code: BG/2002/IB/AG/02</p> <p>Support to pre-accession strategy of Ministry of Agriculture and Forestry and Ministry of Environment and Water in the Field of Agri-environment</p>	1 MEURO	Nitrates, Farm wastes, Good agricultural practices	<p>The immediate objectives of the project are:</p> <ol style="list-style-type: none"> 1. Assistance in the finalization of the harmonization of the Bulgarian legislation with the EU legislation and EU practice, according to the requirements of the Directive 91/676/EEC (Nitrate Directive) in the field of Good Agricultural Practice and assistance in the implementation of the Code for Good Agricultural Practice. 2. Assistance in the harmonization of the Bulgarian legislation with the EU legislation and EU practice according to the requirements of the Regulations 1257/99 and 445/2002 (agri-environment and rural development legislation). 3. Assistance in strengthening the agri-economic capacity to establish area related payment calculation methods regarding the agri-environmental schemes. 4. Assistance in setting up a monitoring and control system for Agri-environmental measures, the Code for Good Agricultural Practice and the Rural Development Measures according to the EU requirements. 	<p>The project aims at development of Codes of good agricultural practices, and administrative capacity building at regional level. The activities envisaged in the project do not focus directly on the farmers.</p> <p>The project is expected to start in September 2003 (the twinning covenant is under preparation)</p>
<p>PHARE project BG 360 006-03/2001 Protection of waters against pollution caused by nitrates from agr. sources – directive 91/676/EEC – The results (the pilot codes for Good Agr. Practice for Plovdiv region) are going to be incorporated in the project</p>	n.a.	Nitrates Good Agricultural practices	<p>Harmonization of legislation</p> <p>The results of the project are pilot codes for Good Agricultural Practice (developed on the base of Plovdiv region, but disseminated throughout the country)</p>	The project was implemented in 2001

<p>Black sea ecosystem recovery project (UNDP-GEF)</p>	<p>n.a.</p>	<p>Nutrients</p>	<p>Control of nutrients discharges emerging from agricultural sector is highlighted in the following components of the project: Objective 2. Regional actions for improving land based activities and legislation to control eutrophication and for tackling emergent problems Objective 4 Introduce new sectoral laws and policies and a system of process, stress reduction and environmental status indicators for monitoring the effectiveness of measures to control eutrophication (and harmful substances where appropriate) Objective 6. Assist the public in implementing activities to reduce eutrophication through a programme of grants for small projects and support to regional NGOs</p>	
<p>Partnership for preservation of Black sea from eutrophication and introducing sustainable agricultural practices</p>	<p>n.a.</p>	<p>Nutrients</p>	<p>Gathering and dissemination of “best farming practices” and best experience for protection and control of the eutrophication. Publishing a manual for the farmers with best agricultural practices and measures for protection of water basins. Analysing the European legislation and the mechanisms for support of the good farming practices Organisation of seminars for promotion of the concept of sustainable agriculture</p>	

Institutional Arrangements

Project	Institution/Organisation	Responsibility
Bulgaria Wetlands Restoration and Pollution Reduction Project (WRPRP) “Farmer Transition Support Fund” (FTSF)	Project Coordination Unit in the Ministry of Environment and Water, Sofia One local liaison person for each of the project areas	PCU is responsible for the overall coordination of the project; The local liaison person and (the planned) FTSF officer would be responsible for the implementation of the FTSF
PHARE Twinning code: BG/2002/IB/AG/02 Support to pre-accession strategy of Ministry of Agriculture and Forestry and Ministry of Environment and Water in the Field of Agri-environment	Ministry of agriculture and forestry and Ministry of environment and waters are the beneficiaries of the project. The leading twinning partner is Ministry of Agriculture, Nature Management and Fisheries of Netherlands The regional offices of the Ministry of agriculture and forestry, the Regional inspectorates of the MoEW and the regional offices of the National Agricultural advisory service are going to be trained.	The 4 component of the project will be implemented by 4 working groups consisting of different stakeholders. The leaders of the working groups are both from the Ministry of environment and waters and Ministry of agriculture and forestry
PHARE project BG 360006-03/2001 Protection of waters against pollution caused by nitrates from agricultural sources – directive 91/676/EEC – The results of the project (the pilot codes for Good Agricultural Practice for Plovdiv region) are going to be incorporated in the project	Ministry of Environment and waters was the beneficiary of the project. The project was carried out by the Project management Group, Ireland	The codes were developed together with specialist of the National Agricultural advisory service and Plovdiv Agricultural University. Experts from the National plant protection service were also involved in the project.

3.3 Existing Programmes and Projects Promoting “Good/best Agricultural Practice”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

Under development	
yes	
Crop nutrients	yes
Animal wastes	yes
Pesticides	yes
Soil erosion	yes
Other (please specify)	
It is expected that the Code of Good agricultural practices will be developed and published in a booklet till the end of 2004	
No	

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

3.4 Summary and Assessment of the Effectiveness of the “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for **each farming practice that is listed**, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
It is prohibited: <ul style="list-style-type: none"> • the storage of pesticides and waste on river banks and in coastal flooded areas • the construction of cattle-breeding farms on river banks and in coastal flooded areas • the disposal of fertilisers and organic manures (including any associated “packages” e.g. fertiliser bags) directly into surface waters or abandoned wells 	Nutrients, farm wastes, pesticides,	3	v				2 – even if the legislation is strict and well develop, monitoring and control are not done therefore the effect of the regulatory measures does not correspond to the expectations

<ul style="list-style-type: none"> the washing-out of “packages, special uniforms and equipment” associated with fertiliser application in any surface water applying fertiliser in the sanitary protection zone around water sources used for drinking water 							
Application of CoGAP in vulnerable zones	Nutrients, farm wastes., pesticides, erosion	3	v				1 – not yet applied
Application of Codes of good farming practices	Nutrients, farm wastes., pesticides,	3		v			1 – not yet applied
Training programmes, and awareness raising	Nutrients. farm wastes, pesticides, erosion	2			v	v	2
SAPARD Measure 1.3. development of environmentally friendly practices and activities	Nutrients. Farm wastes, pesticides, erosion	2		v			1 – Not applied yet
Organic farming	Nutrients. Farm wastes, pesticides	2				v	Limited effects in the regions where certain projects are implemented

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

In general the main agricultural pollution problems are well addressed in the existing legislation in Bulgaria. However the regulatory mechanisms are not implemented due to lack of funds and insufficient administration. There are no incentives (economic support) for reduction of the pollution from agricultural sources. Although the data shows reduction of nutrient pollution this could be explained by the lack of funds of the farmers, not by the existing regulatory and economic mechanisms. On the other hand the fines are either too big or too small, so they could not be an effective way for prevention of the agricultural pollution.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

The codes of good agricultural practices and good farming practices are under development

There are no incentives for the moment for the farmers for implementation of environmentally friendly practices.

Training of trainers is limited and done only under several projects

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

All the above mentioned issues should be addressed

3.5 Information Sources

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

National legislation

Ministry of Environment and Water

National Plant Protection Service

National Agricultural Advisory Service

Expert opinion

Soil erosion in Bulgaria – experts from Rousseva S., Lazarov A., Tzvetkova, et al.

Meetings with experts from Poushkarov Institute for Soil science

Limit values for persistent organic pollutants in soils of Bulgaria – I. Atanassov, Konstantine Tterytze, Alexander, Alexandrov

Annex 4

Croatia



4 Croatia

POLICY REVIEW QUESTIONNAIRE

Country under Review	Croatia
Name of Expert(s)	Ramona Franić

4.1 POLICY STRATEGY AND OBJECTIVES

Note:

So far, Croatia has no specific, clearly defined national strategy dealing with the water pollution caused by agriculture. That's why at the moment there are no elaborated objectives and defined methods for protecting water from nutrients, pesticides or soil erosion. Within the National Strategy of Environmental Protection the aspects of environmental protection in agriculture are included under three main areas: water, agriculture and soil. However, elaborating water protection, the Strategy doesn't recognize the agricultural activities as the source of pollution.

All mentioned is the reason that we can not obtain officially enacted strategies and policy objectives, but only diagnosis arose from expert evaluations (mainly from the studies prepared for the state agency "Hrvatske vode" – Croatian Water, and for the Ministry of Agriculture and Forestry of the Republic of Croatia), hoping that these estimations and suggestions will be used as the expert background and the basis for the future policy decisions on water protection issues.

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	NO
<p>Description of strategy:</p> <p>Total application of nitrogen, including nitrogen from manure and mineral fertilizers is rather high in some Croatian regions (mostly northern and eastern part). The level of application of nitrogen point on need for detailed review of nitrogen utilization, although there are no leads that would confirm that fertilizing causes water pollution by nitrogen. On the basis of mineral fertilizer use in Croatia during the last decade, the trend shows that the amount of all mineral fertilizer consumption will increase very slowly. However, due to total decrease in mineral fertilizers consumption (compared to 1990) and decrease of the total livestock number, the level of nitrogen which makes pressure for the environment from agricultural activities is also decreased. Following the conclusions of the 2nd International conference in Washington (2001), strategic option is to increase the level of nitrogen utilization within the current and improved technologies, keeping the production profitability and decreasing the environmental pollution.</p> <p>Regarding phosphorus, its leaching out from agricultural soils is irrelevant problem so far, due to the recent research results. One of the reason is the amount of phosphorus applied in fertilizing, while this amounts are the highest in northern and eastern part of the country.</p> <p>Basic direction toward the preserving water quality is education of farmers on ecologically acceptable (environment friendly) growing technologies.</p>	

<p>Policy objectives:</p> <ul style="list-style-type: none"> • avoid over-consumption of nutrients, due to potential danger of water pollution • making the plan for implementation the Directive on nitrogen – Water protection from agricultural pollution (91/676/EEC), but in harmonization with national conditions • making detailed suggestions for fertilizer application (organic and mineral) – due to the type of the soil, climate conditions, crop structure etc. • preparing the Croatian Codex of good agricultural practice (periods in which the application of fertilizers is forbidden, fertilizer application on slopes, near water resources, agricultural land management, including crop rotation, minimum of plant cover, preparing fertilizing plans at family farms) • introducing the program of education and informing 	
Farm wastes – manure and slurry?	NO
<p>Description of strategy:</p> <p>Regarding rather low number of livestock in Croatia, total annual production of manure should not be considered as dangerous for water pollution. Small-size farms produce majority of manure quantities and, due to their size, are not considerable polluters, because manure is utilized on their own agricultural land. On the other size, these small farms often have problems with storage capacities for the manure, and can be source of pollution for surface waters. Important problems for water management originate from high capacity of several livestock farms.</p> <p>Strategic recommendations, therefore, are directed toward the improving storage capacities for manure and slurry, ensuring safety zones in which manure shouldn't be applied (near water streams, around water-springs and wells; volume of agricultural production should be determined according to available arable land</p> <p>Policy objectives:</p> <ul style="list-style-type: none"> • determine maximum number of livestock heads per hectare • improving storage capacities for manure • determine maximum amount of permitted nitrogen consumption from organic fertilizers • improving manure application practice (at least 3 weeks between two applications) • creation suggestions and legislation for better use of manure 	
Pesticides?	NO
<p>Description of strategy:</p> <p>In Croatia there are no exact statistic data on pesticide consumption, but some estimations show that current consumption of pesticides is about 2.5 times lower than those in EU countries, measured per hectare. Assortment of used stuffs is similar with EU's, so distribution licences have only those pesticides that are commonly used in EU. However, due to low average level of farmers' knowledge about pesticide use, in Croatia there is increased danger of local contaminations caused by human mistakes.</p> <p>Recommendation is to introduce the treatment index as consisting part of monitoring. The strategy should involve:</p> <ul style="list-style-type: none"> • approving pesticides and gradually removing pesticides which do not satisfy requirements (already accepted and implemented) • detail information and analysis on pesticide consumption • making action plans for decreasing pesticide consumption • better management (application due to needs) and informing campaign for agricultural producers 	

<p>Policy objectives:</p> <ul style="list-style-type: none"> • foundation of the central data bank (including former and current data on the types and amounts of pesticides in water, enlarging it on heavy metals, nitrates and other polluters) • establishing systematic monitoring of pesticides in waters, their active stuffs, per counties (regional) and in total • ensuring financial means for monitoring activities • where possible, using reduced dose of pesticides • introducing the treatment index at the land plot basis • education of the members of Agricultural Extension Service, as well as other institutions for fulfilling the monitoring and recommendation • improving and spreading education on enlarged number of pesticide users • improving equipment, storage and manipulation capacities 	
<p>Soil erosion?</p>	<p>NO</p>
<p>Description of strategy:</p> <p>Characteristics of the current situation regarding soil erosion and water streams, as a result of natural development factors, are unequally distributed on the territory of the Republic of Croatia, while the eastern plain area is less endangered. Positive (protective) human activities in the field of soil protection from erosion and arrangement of water streams are organized as separate water resources management activities within the legislative framework.</p> <p>Strategic recommendations refer to activities in soil management toward conservation, based on integrated soil protection against erosion. Recommended activities are terracing, form-fitting objects, agricultural operations (conservation tillage, crop-rotation, soil mulching etc.)</p> <p>Policy objectives:</p> <ul style="list-style-type: none"> • determine parameters for contemporary prognostic methods for estimation erosion processes • adopting conservation soil tillage and crop-rotation as efficient farming systems for controlling soil erosion • adopting long-term research of erosion within different production and environmental circumstances, based on methods adjusted with international standards • obtain detailed cadastral and mapping surveys of all technical and biological activities against erosion and water stream regulations 	

4.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

4.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation ⁵⁵	General Reg.?	Specific Reg.?	Pollution Issue ⁵⁶	Farming Practices Required/ Restricted by Regulatory Instruments ⁵⁷	Level of Implementation & Enforcement ⁵⁸	Reasons for Poor Implementation and/or Enforcement ⁵⁹
Law on nature protection (NN 30/1994, 72/1994)	√		not defined	none	Not relevant	too general
Report on the state of the environment in the Republic of Croatia (NN 88/98)	√		soil erosion		Not relevant	
Law on environment protection (NN 82/1994, 128/1999)	√		only definition of emissions harmful for the environment	- suggestions for tax and tariff privileges in case of using environmental friendly production procedures, production and distribution practices (to be regulated by separate legislation)	3	too general
Strategy and action plan for bio- and landscape diversity (NN 1999)	√		not defined	none	Not relevant	too general, lack of detailed definitions, just listed needs of specific action plans

⁵⁵ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

⁵⁶ Nutrients, farm wastes, pesticides or soil erosion

⁵⁷ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

⁵⁸ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

⁵⁹ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

National strategy for environmental protection (NN 46/2002)	√		<p>not defined agricultural pressure on water (nutrients), only of fresh-water fishery;</p> <p>defined soil erosion, acidification and heavy metals, and pressure on soil quality by nitrogen fertilizers, herbicides, nitrogen leaching and consequently contamination of surface and underground water</p>	<ul style="list-style-type: none"> - soil monitoring system - preventing acidification of soil - preventing erosion - limitation of changes in soil purpose 	<p>general: 2</p> <p>agricultural soil: 2</p> <p>water: 3</p>	<ul style="list-style-type: none"> - inadequate awareness and identifying agriculture as the source of <u>water</u> pollution - strategic priority is defined ("decreasing agricultural pressure, especially on waters"), but not elaborated well
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National plan of environment activities (NN 46/2002)	√		<ul style="list-style-type: none"> - liquid manure and waste water as a result of intensive livestock growing (nutrients) - soil erosion 	<ul style="list-style-type: none"> - improving control over mineral fertilizer consumption, support for using organic fertilizers and bio pesticides (ecological agriculture) - stronger control over harmful pesticide application - limitation of drainage and preserving water regime of the wet habitats in lowlands - keeping part of rural areas (15%) under natural conditions; preserving natural habitats near arable areas, roads, public drains; keeping weeds on marginal parts - support construction of facilities for cleaning liquid manure 	2	- so far, only declarative, practice is not coordinated with agricultural policy measures
Law on water (NN 107/1995)	√		nutrients, pesticides soil erosion	afforestation, growing protection vegetation, marking, adequate use of agricultural land utilization, drainage	2	- too general
Law on financing water administration (NN 107/1995)	√				Not relevant	
Directive on water categorization (NN 8/1998)	√				Not relevant	
Directive on water classification (NN 7719/98)	√				Not relevant	

Directive on dangerous substances in water (NN 78/1998)		√	nutrients, pesticides	- prescribe harmful substances and their quantities harmful for water resources (indirectly connected to farming practice)	3	- detailed document, but farmers are not informed
State Water Protection Plan (NN 8/2002)	√		defining contamination and pollution of water, all harmful stuffs included	limitation of building and producing on small waterstreams where waste water can endanger water quality adopting new, better production technologies	1	- linking with International Operations Manual in cases of sudden pollution (related to Danube system, DRPC) - defining required financial means and sources - defining responsibilities - defining indicators of water quality
Law on agricultural land (NN 54/1994)	√		soil erosion		n.a.	
Regulation on agricultural land protection from harmful substances pollution (NN15/1992)		√	nutrients, pesticides	calcification materials, soil conditioners, different organic and mineral products for improving soil quality	n.a.	
Law on forests (NN 52/90)	√		soil erosion	n.a.	n.a.	
Law on protection from accidents due to natural forces (NN 47/89)		√	soil erosion	n.a.	n.a.	
Law on protection from flood (NN 13/92)		√	soil erosion	n.a.	n.a.	

Law on agriculture (NN 66/2001)	√		indirectly – all issues	<ul style="list-style-type: none"> defines measures of structural policy for developing agriculture that cares on environment suggest the need for making soil maps 	n.a.	not elaborated well, water resources are not explicitly mentioned
Law on ecological agriculture (NN 12/2001)	√		nutrients, pesticides	<ul style="list-style-type: none"> defining system of sustainable management in agriculture and forestry, involving plant and livestock growing, production of food, raw material and fibre additionally regulated by specific regulations (NN 13/2002) 	2	- only about 60 family farms are engaged in such production system so far

Law on fresh water fishery (NN 18/1986, 34/1989, 26/1993, 29/1994)		√	n.a.	n.a.	n.a.	
Strategy of agriculture and fishery of the Republic of Croatia (NN 89/2002)			soil erosion pesticides	<ul style="list-style-type: none"> measures of flood protection, drainage, melioration introducing control over pesticide consumption, integrated plant protection 	2	- too general, over-ambitious
Regulation on ecological production in plant growing and production of plant products (NN 91/2001)		√	n.a.	n.a.	n.a.	
Regulation on ecological production of animal products (NN 13/2002)		√	n.a.	n.a.	n.a.	
Regulation on professional control in ecological production (NN 13/2002)		√	n.a.	n.a.	n.a.	
Law on state support in agriculture, fishery and forestry (NN 87/2002)	√		indirectly – nutrients, pesticides	- higher payments for ecological production practices	n.a.	- practice did not prove its quality in preserving natural resources yet
Law on plant protection (NN 10/1994)			pesticides		n.a.	n.a.
Law on toxins (NN			pesticides		n.a.	n.a.
Regulation on Environmental Emissions Cadastre (NN 36/1996)			n.a.	n.a.	n.a.	n.a.

Convention on co-operation in protecting and sustainable use of Danube river (Sofija, 1994, int. agreements NN 2/1996)			n.a.	n.a.	n.a.	n.a.
Convention on protection and use of over border-line water streams and international lakes (Helsinki, int. agreements NN 4/1996)			n.a.	n.a.	n.a.	n.a.

Institutional Arrangements

Institution/ Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ⁶⁰	Reasons for Any Lack of Implementation Capacity ⁶¹
Croatian water (Hrvatske vode)	<ul style="list-style-type: none"> improvement of water management (water regulation, protection from adverse effects of water as well as to municipality users through water supply, sewerage and wastewater treatment projects) offering direct expert, technical, economic and legal assistance to municipal users in defining, preparing and implementing projects 	general water protection: 1 water protection from agriculture: 2	<ul style="list-style-type: none"> insufficient co-ordination of the institution with other responsible institutions (above all, Ministry of Agriculture and Forestry) and lack of joint actions lack of adequately trained staff regarding agricultural activities

⁶⁰ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁶¹ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

	<ul style="list-style-type: none"> • flood protection on local waters, protection from erosion and torrents as well as amelioration drainage in accordance with flood protection plans for catchment areas enacted by county assemblies • monitoring quality of surface waters, sediment, groundwater (and coastal sea) • monitoring municipal and industrial wastewater 		
	<ul style="list-style-type: none"> • preventing accidental pollution; necessary sanitation • coordinating water protection planning of regional and local communities • making financial plans • continuous monitoring the effectiveness of measures taken under the State Water Protection Plan and giving the report to the State Water Directorate 		
<ul style="list-style-type: none"> • State Water Directorate 	<ul style="list-style-type: none"> • regulatory, inspective and appellate activities in the field of water management • coordination of the realization of international commitments under the State Water Protection Plan • fulfilment the water protection measures financed from the state budget • giving comments for implementation the State Water Protection Plan • making report for the Croatian Government on activities for implementation the State Water Protection Plan 	3	agriculture is not recognized as important source of water pollution

<ul style="list-style-type: none"> • National water council 	<ul style="list-style-type: none"> • discuss legislation, financing system, Water Management Master Plan of the Republic of Croatia and needs related to the water system that arise in various fields 	<p>n.a.</p>	<p>n.a.</p>
<p>State Directorate for the Protection of Nature and Environment</p>	<ul style="list-style-type: none"> • preparing regulations, performing administrative control and other administrative and expert duties in the field of environmental protection, referring to the general environmental policy in proficing conditions for sustainable development • protection of water (air, soil, sea) and plant and animal life in the totality of their interactions • proposing, promoting and monitoring measures for environmental improvements • ensuring maintenance of the pollution cadastre (monitoring), management of environmental information system, establishing env. protection measures, requirements and compliance • waste management; preparation of proposals for environmental standards, env. inspection activities; supporting environm. education and research 	<p>n.a.</p>	<p>n.a.</p>

Environment Protection Agency	<ul style="list-style-type: none"> collecting and processing data on environment, preparing report, monitoring environmental situation, preparing methodology for processing data on environment and their evaluation, conducting database on environment for informing the state administration bodies 	n.a.	n.a.
Ministry of environmental protection and spatial planning	<ul style="list-style-type: none"> preparing legislation, financing projects for environmental (and water) protection 	n.a.	n.a.
Ministry of agriculture and forestry	<ul style="list-style-type: none"> preparing legislation and directing special subsidies toward environmental friendly farming systems 	n.a.	n.a.
Department for plant protection	<ul style="list-style-type: none"> suggestions and consultations on good farming practice (mostly for using pesticides in plant protection) 	n.a.	n.a.
Department for soil	<ul style="list-style-type: none"> determining the level of agricultural soil pollution (inventory), continuous monitoring of agricultural land and soil (physical, chemical and biological changes, and especially the level of harmful substances in agricultural soil), suggestions for adequate fertilizing, soil analysis 	n.a.	n.a.

4.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish ?	Reward ?	Pollution Issue ⁶²	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ⁶³	Reasons for Poor Implementation ⁶⁴
subsidies for ecological agriculture		✓	nutrients, pesticides	all ecologically based systems of agricultural production – crop production, livestock production, aquaculture	2	measures introduced this year, not yet proved in practice

⁶² Nutrients, farm wastes, pesticides or soil erosion

⁶³ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

⁶⁴ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

water protection fee, penalties for non-observance the Law on water	√		harmful substances over permitted marginal values	n.a.	2	present water protection fee should not be lower than the costs of waste-water treatment, but in reality the present fee is some four times lower than the actual costs of waste water treatment
finances, charges and penalties for farmers applying slurry and liquid manure during winter and in quantities other than those prescribed by the Regulation on agricultural land protection from contamination with harmful substances	√		nutrients	rarely enforced to small-size private farms, mostly to the big (ex-state) farms	2	n.a.
grants national awards and prizes for environmental achievements (for pollution prevention, environmentally soundest solutions for production processes, capacity-building and education)	√		n.a.	n.a.	n.a.	n.a.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments⁶⁵	Reasons for Any Lack of Implementation Capacity⁶⁶
Croatian Water – Sectors for water management	<ul style="list-style-type: none"> charging water fees for the purposes stated in the Law on financing water management – for local water management, financing the servicing and management of meliorative drainage systems 	2	lack of coordination between the sectors in charge, lack of control and lack of punishment for not paying that fees
Local enterprises for water distribution	<ul style="list-style-type: none"> charging fees that include: the price of water, price of sewage systems, filters, concession (taxated part) and compensations for water use and protection (not taxated part) 	2	not all rural areas have waterworks systems and if they have, not all farmers use the system and pay fees
Ministry of Agriculture and Forestry of the Republic of Croatia	<ul style="list-style-type: none"> subsidizing ecological systems of agricultural production 	2	not yet verified in practice
Ministry of Environmental Protection	<ul style="list-style-type: none"> budget for environment (including water) protection 	n.a.	n.a.
The State Directorate for the Protection of Nature	<ul style="list-style-type: none"> awards and prizes for environmental achievements 	n.a.	n.a.

⁶⁵ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁶⁶ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

4.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue ⁶⁷	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake ⁶⁸	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	partial	nutrients, pesticides	recommendation for some kind of "good agricultural practice" within the agricultural firms	2	applied only within limited number of producers (state or ex-state farms and their co-operators, or contractor with several successful firms)
Technical assistance by State advisory service	yes	nutrients, pesticides, erosion	always available suggestions and recommendations of agricultural production technologies	2	lack of staff, lack of knowledge about pollution problems, insufficient funded campaign, small number of farmers that require advises
Technical assistance by providers of farm inputs	yes	nutrients, pesticides, erosion	n.a.	2	lack of well trained staff (traders, not agricultural or environment experts)

⁶⁷ Nutrients, farm wastes, pesticides or soil erosion

⁶⁸ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Education and awareness-raising campaigns	yes	nutrients, pesticides	recommendation for ecological systems of agricultural production	2	small number of farmers interested in such kind of agricultural practice
Demonstration farms	no				
Learning by sharing of ideas among the farmers	yes	nutrients, pesticides, soil erosion	n.a.	2	slow effects
Publications and other information materials	?	pesticides, nutrients		1-2	small quantity of issued materials, not promoted enough
Training	?				poorly funded
Other (please describe):					

Institutional Arrangements

Institution/ Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ⁶⁹	Reasons for Any Lack of Implementation Capacity ⁷⁰
Croatian Agricultural Extension Service	<ul style="list-style-type: none"> regarding water protection there is no responsibility, but indirectly through the elaborated suggestions for fertilizer application (for all agricultural crops) and integrated plant protection 	2	<ul style="list-style-type: none"> no direct suggestions and information about water protection requirements, due to insufficient knowledge the experts and management team of the Service have no specific education/training or demonstration programmes relating to the control of water pollution lack of co-operation with the State Waters Directorate and the Ministry of Environment
Department for plant protection	<ul style="list-style-type: none"> suggestions and consultations about "good farming practice" (mostly for using pesticides in plant protection) 	2	<ul style="list-style-type: none"> undeveloped co-operation with other institutions responsible for environment protection
Croatian Water	<ul style="list-style-type: none"> publishing monthly newsletter "Croatian Water Management" organizing conferences on water management issues 	2	<ul style="list-style-type: none"> the level of general information on water use and water protection are rather high information regarding the agriculture and water protection – NOT OBTAINED
State Directorate for the Protection of Nature and Environment	<ul style="list-style-type: none"> publishing monthly bulletin "The Environment" together with the Ministry of Education organizes the First Congress on Envir. Education 	n.a.	<ul style="list-style-type: none"> no information yet

⁶⁹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁷⁰ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Non-governmental organization	<ul style="list-style-type: none"> research problems and promotion activities, participation in the preparation and elaboration of documents 	2	<ul style="list-style-type: none"> no permanent staff, problems in organization of members meetings, lack of financial resources
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4.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

Project	Project Budget	Pollution Issue ⁷¹	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ⁷²
System water-soil-plant	n.a.	RD4, WP1, leaching potentially harmful substances (nutrients, pesticides)	n.a.	Faculty of Agriculture, Zagreb
Soil erosion within agrieological circumstances of Central Croatia	n.a.		n.a.	Faculty of Agriculture, Zagreb
Influence of growing dosis of mineral nitrogen on its leaching	n.a.	WP1, WP4, RD4	n.a.	Faculty of Agriculture, Zagreb
Soil and water protection in agriculture	n.a.	WP1, WP4, RD4 (nutrients, heavy metals, pesticides)	n.a.	Faculty of Agriculture, Zagreb

⁷¹ Nutrients, farm wastes, pesticides or soil erosion

⁷² Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

Sustainable natural fodder resource farming systems	n.a.	LB3, LB6	n.a.	Faculty of Agriculture, Zagreb
Integrated plant protection	n.a.	TX1, WP3, LB8	n.a.	Faculty of Agriculture, Zagreb
Saving energy and soil density in arable crop production	n.a.	LB3	n.a.	Faculty of Agriculture, Zagreb
Interpretation soil base of Eastern Croatia	n.a.	LB3	n.a.	Faculty of Agriculture, Osijek
Wheat top dressing according to the N-min method	n.a.	RD4, LB6	n.a.	Faculty of Agriculture, Osijek
Alternative insecticides	n.a.	TX1, WP3, LB8	n.a.	Faculty of Agriculture, Osijek
Integrated arable crop protection from weed	n.a.	TX1, WP3, LB8	n.a.	Faculty of Agriculture, Osijek
Drainage and irrigation in sustainable agriculture of Eastern Croatia	n.a.	WP1, LB6	n.a.	Faculty of Agriculture, Osijek
Integrated vegetable protection	n.a.	TX1, WP3, LB8	n.a.	Faculty of Agriculture, Osijek
Protection of forest ecosystems from biotic and abiotic factors	n.a.	soil degradation	n.a.	Faculty of Agriculture, Osijek
Water protection in Kopacki rit preserve	n.a.	water eutrophication	n.a.	Faculty of Education, Osijek
Scientific development of water management	n.a.	drainage systems for waste waters, preserving aquatic ecosystems in natural and artificial waters and environment, systems for flood and soil erosion protection	none	Faculty of Civil Engineering, Zagreb

Organisms, bioindicators of the quality of water in which they live	n.a.	bioindicators, physiological/pathophysiological indicators in correlation with physical/chemical/biological water quality	n.a.	Institute "Rudjer Boskovic", Zagreb
Biological removal of humus substances from natural water	n.a.	nutrients (organic stuffs)	n.a.	Faculty of Chem. Engineering and Technology, Zagreb
Organic substances in waters and procedures of their removal	n.a.	pesticides, heavy metals, nutrients	n.a.	Faculty of Chem. Engineering and Technology, Zagreb
Continuous monitoring of underground and surface waters in plain forests	n.a.	...	n.a.	Forestry Institute, Jastrebarsko
Managing sustainable agriculture farming systems	n.a.	(active soil deepness, soil permeability, dominant hydromorphism, erodibility), nutrients, pesticides, farm waste, soil erosion	defined basic production systems and determined main technological parameters for the farm crops and livestock growing in sensitive areas	Faculty of Agriculture, Zagreb

Evaluation of the situation, sources and the level of agricultural pressure on water resources and sea in the Republic of Croatia	n.a.	nutrients (from mineral fertilizers and manure), farm waste, pesticides, soil erosion	including elements of sustainability in farming practice; improvements in farm waste management (manipulation, capacities), planning the volume of agricultural (livestock) production in connection with the size of farm (arable land); ensuring correct data keeping on used pesticides at the local level and in general, determining active substances in pesticides and locations for monitoring this substances in water resources, ensuring education of farmers regarding use of pesticides	Faculty of Agriculture Croatian Water
Policy of support for environment protection in agriculture	n.a.	nutrients	suggestions for the state administrative measures toward environmental friendly farming system support	Scanagri (Denmark) for the Ministry of Agriculture and Forestry of the Republic of Croatia
Ecological agriculture and sustainable rural development in Croatia	n.a.		<ul style="list-style-type: none"> • demonstrations and experiments on selected farms • popularization of ecological production systems • informing and education 	Ecologica (Croatian NGO) and AVALON (Netherland)

Institutional Arrangements

Project	Institution/Organisation	Responsibility
Listed in previous table	Scientific and research institutions listed in previous table	<ul style="list-style-type: none"> • research and providing data and expert evaluations on agricultural pressure on water resources (expert analysis, studies)

4.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

NO	
Crop nutrients	
Animal wastes	
Pesticides	
Soil Erosion	
Other (please specify)	

4.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)

- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
farm waste management (liquid manure above all) – according to reg. inhibition of draining harmful and dangerous stuff into water	nutrients, farm waste	low – due to inadequate sewage systems in rural areas	√	√	n.a.	n.a.	rather unsuccessful, due to lack of institutional co-ordination; lack of control and punishment for non-observance the law regarding farm waste management (dispersed responsibilities of the institutions)
protective belts near rivers	pesticides	moderate – generally, farms respect the practice of non-using pesticides near rivers	√	√	n.a.	n.a.	not enough information from responsible institutions (only regulative and econ. background)
prohibition of building and doing (agric.) activities in sensitive and protected areas (national parks, parks of nature etc.)	nutrients, farm waste, pesticides	high – regulated by law and respected by producers	√	√	√	√	successful, due to quality legislative framework, economic instruments, and applied projects (as Lonja field, Kopacki rit etc.)

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

Overall estimation of the policy instruments regarding water pollution control is weak. Basic problem is that the consciousness about need for water protection from all potentially harmful influences (including agricultural activities) is still at low level – so far, it exists only within narrow ken of experts and administrative elite, mostly agricultural oriented). It can be noticed that, in spite of the large number of enacted laws and regulations that arrange and regulate water resource protection, there is still considerable lack of legislation regulating protection of water resources from harmful consequences of intensive agricultural activities. Partially we can explain this situation by "idleness" resulting from conviction that Croatia is rich with clear and clean waters, and partially by the fact that Croatian agricultural sector is in predominantly private ownership of small-size family farms that operate mostly on principles of sustainability, so this need has not been clearly expressed so far.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

Regarding agriculture as the source of water pollution, there are numerous scientific research and expert studies trying to explain basic elements of pollution danger, as well as to obtain recommendations how to avoid that danger. However, the process of spreading and adopting these comprehensions and knowledge in practice – either in policy decision-making processes, administrative operations and legislation adjustment, or in basic farming sector, in case where farms have to accept environmental friendly farming practice.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

The first step in correction of these difficulties is education at different levels – administration, extension service, farmers. Precondition for these actions is well founded data base on environment and agricultural activities, and overall influence of agriculture on environment measured by adopted indicators. Some of these indicators are already available (gathered and processed by the Central Bureau of Statistic of the Republic of Croatia), but there is still an urgent need of gathering larger number of mentioned indicators (as changes in conventional agriculture, qualified organic farms, organic agriculture, consumption of mineral fertilizers, pesticides, balance of nutrients, areas under agriecological contracts, ecological agriculture; data on soil quality – changes in organic soil substance, eutrophication, soil contamination by pesticide residues, heavy metals, toxical substances, waste, soil information system; etc.). Regarding water resources, large data base cover mostly data on water consumption, but data on water contamination and pollution are still insufficient or completely lacking.

At least, but not less important, it would be desirable to adopt practice of common (agricultural and environmental) policy decision making, because those two sectors are close and dependent, but cooperation of responsible ministries and other institutions involved were insufficient and uncoordinated. Additionally should be increased control over legislation implementation in practice and intense measures of rewarding and punishing

4.5 INFORMATION SOURCES

1. Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies
2. 3rd Croatian Conference on Waters: Croatian Waters in the 21st Century (2003). Proceedings. Osijek, Croatia, May 28-31.
3. Croatian Waters, Sector for water and sea protection from contamination and pollution (2002): Summary of the Report on investigating the water quality in the Republic of Croatia in 2000. Zagreb
4. Faculty of Agriculture, University of Zagreb, Department of General Agronomy (2002): Estimation of the state, sources and level of agricultural pressure on water resources and sea on the territory of the Republic of Croatia (prepared for Croatian Waters), Zagreb.
5. FAO Subregional Office for Central and Eastern Europe (1999): Central and Eastern European Sustainable Agriculture Network. First Workshop. Proceedings. Gödöllő, Hungary, March 2-7.
6. Republic of Croatia, Ministry of Agriculture and Forestry (2002): Farmer support service project: Policy of environment support in agriculture – draft report (prepared by Scanagri, Denmark), Zagreb
7. Republic of Croatia, Ministry of Environmental Protection and Physical Planning (2001): National possibilities of gathering environmental data (Part 2.2. Agriculture and 2.12. Soil, prepared by M. Mesić, and Part 2.13. Waters, prepared by Gorana Ćosić-Flajsig), Zagreb
8. UNDP/GEF Danube Regional Project (2002): Policies for the control of agricultural point and non-point sources of pollution and Pilot project on agricultural pollution reduction – Draft Inception Report. (GFA Terra Systems in cooperation with Avalon). Mission report to Croatia (by Darko Znaor),
9. <http://www.mzopu.hr>
10. <http://www.mps.hr>
11. <http://www.voda.hr>
12. <http://www.mzt.hr/projekti9699/122009.htm>
13. <http://nn.hr>

Annex 5

Czech Republic

5 Czech Republic

POLICY REVIEW QUESTIONNAIRE

Country under Review	Czech Republic
Name of Expert(s)	Jaroslav Prazan

5.1 POLICY STRATEGY AND OBJECTIVES

	Yes / No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	
Description of strategy: Policy objectives:	No
Farm wastes – manure and slurry?	No
Description of strategy: Policy objectives:	
Pesticides?	No
Description of strategy: Policy objectives:	
Soil erosion?	No
Description of strategy: Policy objectives:	

5.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

5.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation⁷³	General Reg.?	Specific Reg.?	Pollution Issue⁷⁴	Farming Practices Required/ Restricted by Regulatory Instruments⁷⁵	Level of Implementation & Enforcement⁷⁶	Reasons for Poor Implementation and/or Enforcement⁷⁷
Law No.156/1998 Col. about fertilisers	✓		Pollution by nutrient	Storage of fertilisers	1	
Directive No. 274/1998 Col. About storage and use of fertilisers		✓	Pollution by nutrient	Localities, ways of fertilisers and in addition capacities of manure storage, application: even, not on water logged, frozen, covered by snow, to avoiding pollution of water, keep record per field	2	Not all capacities of storages are not checked and especially not all farmers are not pushed to increase capacities (no financial capacities to invest)
Water Law No. 254/2001	✓		Framework for other legislation, issuing of polluted water, protection of surface and ground waters, Nitrate Vulnerable Zones framework,	Framework for: effluent issue, Nitrate Vulnerable Zones implementation (fertilisers use and storage),	1	Note. Too general to show efficiency for pollution prevention

⁷³ Please add additional information when necessary. For example if the legislation is area specific indicate% of national area affected etc. – however only include area specific legislation if it is relevant to the Danube catchment

⁷⁴ Nutrients, farm wastes, pesticides or soil erosion

⁷⁵ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

⁷⁶ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

⁷⁷ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Government decree No. 103/2003 about vulnerable zones, use and storage of fertilisers and manure, crop rotation and erosion prevention		✓	Water pollution by nitrates	Use (timing, amount – max. 170 kg N/ha, according to locality type, according to type of crops and soils, close to waters, on slopes), storage – locality, capacity, of fertilisers and manure. Farming on slopes concerning erosion.	Adopted, will be in force from 2004	-
Law No. 334/1992 about soil protection (amended as 13/1994)	✓		Erosion, decrease of water quality in connection to land use	Land use change could be ordered	2	So far change of land us is not ordered frequently (politically sensitive, difficult to enforce)
Law No. 147/1996 Col. About plant protection (amended No. 409/2000 and 314/2001)		✓	Pollution by pesticides	Approving proper products, machinery (their regular control),	1	In addition – nobody is controlling use of them close to waters – roles of administration distribution gap (between Czech Inspection of Environment and Plant Protection Administration)
Law on organic farming		✓	Pesticides, nutrients, soil erosion	Avoiding pesticides use, whole system of sensitive farming practices	1	

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ⁷⁸	Reasons for Any Lack of Implementation Capacity ⁷⁹
Ministry of Agriculture	Policies for water protection in agriculture (legislation with MoE, nutrient management according to Nitrate directive, drinking water supply sources protection, river system protection, floods prevention...). Supporting policies to improve situation in water pollution prevention (manure storage facilities renewal etc.).	2	In some areas still lack of coordination with MoA (is improving a lot). Not targeted in prevention of pollution. Lack of finances for situation improvement (investment supports for example storage facilities)
Czech Inspection of Environment	Control of legislation observation – especially Water act and related legislation	1	Is fulfilling well, but down stream oriented. It means duties are to cope with incidents not with prevention. As an examples it is not covering rules observation by farmers during pesticides application
Central Institute of Supervising and Testing	Compliance check for rules set in Law No.156/1998 Col. about fertilisers, Directive No. 274/1998 Col. About storage and use of fertilisers	2	Most duties are checked, but lack of compliance in case of storage capacities is not enforced fully (there is knowledge farmers cannot follow the rules fully because of financial resources lack).
Plant protection authority	Approval of pesticides (including rules of their use), approval of machinery for application, storage of pesticides	1	Is fulfilling well, but not covering rules observation by farmers during pesticides application
Ministry of Environment	Legislation in water protection (with MoA), monitoring of water quality, control, policies for river system/ watersheds renewal, NVZs design,	2	In some areas still lack of coordination with MoA (is improving a lot).

⁷⁸ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁷⁹ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

5.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ⁸⁰	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ⁸¹	Reasons for Poor Implementation ⁸²
Government decree 505/2002 about non-productions functions support – MoA		✓	Nutrients and silt in waters caused by erosion, and pesticides use	Arable land conversion to grassland on slopes, All practices associated to organic farming according EU and Czech rules	1	Financial reward is not adequate for grassland introduction and for organic farming on arable land and permanent crops
Program for Nature and Landscape – MoE		✓	Nutrients and silt in waters caused by erosion	Erosion prevention	2	Not focused directly to farmers (to municipalities) and small budget

⁸⁰ Nutrients, farm wastes, pesticides or soil erosion

⁸¹ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

⁸² Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Investment support – MoA and SAPARD		✓	Nutrients pollution	Manure storage facilities renewal	2	Lack of targeting and lack of budget
Law about fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)	2	Difficult to enforce rules supposing heavy investment –farmers have no means
Directive about storage and use of fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)	2	Difficult to enforce rules supposing heavy investment –farmers have no means
Government decree about vulnerable zones	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters), soil erosion practices-contour farming etc.	-	Planned to be implemented from 2004
Law about soil protection	✓		Any pollution, heavy soil erosion	Preventing any activities causing soil degradation	2	Too broad and too ambitious, difficult to enforce (obligations have not clear boundaries)
Law about plant protection	✓		Pesticides	Proper storage, use only approved machinery and pesticides according to guidelines on product	1	There is lack in general design of pesticides use and therefore those are not enforceable.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ⁸³	Reasons for Any Lack of Implementation Capacity ⁸⁴
Ministry of Agriculture (MoA)	Support of farmers for activities according to GD 505/2002	2	Lack of targeting, lack of participation with MoE, lack in budget
Ministry of Environment (MoE)	Support of municipalities for activities associated to Support for river system renewal	2	Not targeted to farmers, small budget, lack of coordination with MoA
SAPARD Agency	Provide farmers with grants – investment support for manure storage facilities renewal	2	Lack of financial means

5.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue ⁸⁵	Farming Practices Encouraged/Discouraged by the Advisory/Informative Instrument	Level of Implementation and/or Uptake ⁸⁶	Reasons for Poor Implementation and/or Uptake
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⁸³ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁸⁴ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

⁸⁵ Nutrients, farm wastes, pesticides or soil erosion

⁸⁶ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Technical assistance by independent advisory service	YES	Nutrients	Fertilisers application rates	2	Independent advisors are more focused to economical advice
Technical assistance by State advisory service	YES	Nutrients, erosion	Timing and quantity of fertilizers use, erosion prevention, storage capacities for manure, nutrients balances.	1	Only deficiency is the activities in education are quite recent and there are not all farmers influenced.
Technical assistance by providers of farm inputs	YES	Pesticides	To keep rules provided on product label (avoid water in application, mind air drift)	2	No interest of pesticides providers
Education and awareness-raising campaigns	YES	Nitrates in vulnerable zones (nutrients), farm waste	Keep manure storage capacities, fertilisers application rules (no autumn application of artificial fertilisers etc.), nutrients balances calculations etc.	1	
Demonstration farms	NO			3	
Learning by sharing of ideas among the farmers	YES	Nutrients, soil erosion	BAP,	2	Open days are more focused to production than to environment preservation – e.g. side effect
Publications and other information materials	YES	Pesticides, fertilisers use,	Sensitive pesticides and fertilisers use (close to waters etc.), reduction of application rates, the most economic use etc.	1	
Training	YES	Nutrients, farm waste	Application rates, nutrients management according to site	2	In starting point, not enough advisors
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/ Information Instruments ⁸⁷	Reasons for Any Lack of Implementation Capacity ⁸⁸
Water Research Institute Research Institute for Plant Production Both supervised by Institute of Agricultural and Food Information	Participation on Nitrate directive implementation campaign	1	
Institute of Agricultural and Food Information	Creation of various publications for farmers (Hand book for pesticides, fertilisers application etc.), leading campaigns (series of seminars – 100 events during last two years in case of nitrate directive implementation) in this direction, coordinating 6 Consultation advisory centres and 17 regional centres with team of state supported advisors heavily concentrated to public benefit advice (environment, welfare etc.)	2	Working quite well but most of the activities started recently (especially concerning environment) and experiences should grow.
Research Institute for Plant Production	Participating with Institute of Agricultural and Food Information and leading/training state advisors – key partner in system of Consultation advisory centres	1	

5.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects

⁸⁷ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁸⁸ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

Project	Project Budget	Pollution Issue ⁸⁹	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ⁹⁰
No projects aimed in changes of farming practices in Danube river basin				

Institutional Arrangements

Project	Institution/Organisation	Responsibility

⁸⁹ Nutrients, farm wastes, pesticides or soil erosion

⁹⁰ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

5.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

YES

Does this include the reduction of water pollution by agriculture?

YES

Does this include water pollution caused by:

Crop nutrients	YES
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Animal wastes	YES
---------------	-----

Pesticides	YES
------------	-----

Soil Erosion	YES
--------------	-----

Other (please specify)	None
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How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet?

Published annually and attached to application form for support.

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Only in case of Code of Good Farming Practice towards nitrates there is massive campaign (web pages, training, seminars etc.)

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

These are more like “Verifiable standards”, because these are supposed to be controllable, simple and not numerous (will become even more simple in RDP). One of the reasons is there are enough standards already in legislation.

5.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use ✓ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Storage of manure	Nutrients	High – minimum capacities, types of storage	✓				2
Storage of manure	Nutrients	High – minimum capacities, types of storage		✓			3
Storage of fertilisers	Nutrients	Medium – rules how to store to avoid leaking	✓				1
Nutrients use, storage	Nutrients	High – rules of nutrients use (timing, amount, water proximity etc.)			✓		1
Erosion prevention – grassland introduction	Erosion - silt	High – significant part of activity was targeted on slopes		✓			2
Pesticides use	Pesticides	High – proper machinery approval, storage rules observation, application rules keeping	✓				2
Pesticides use	Pesticides	High – keeping			✓		1
Organic farming	Nutrients, pesticides and erosion pollution	High especially concerning pesticides use, erosion and to some extent concerning nutrients. Potential will grow with total area devoted to organic farming growth.	✓	✓	✓		1
Permits for grass into arable	Erosion Nutrients	High	✓				1
Limits of pesticides and fertilizers use in nature and water protected areas	Nutrients pesticide	High	✓				1

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

Most of those issues addressed are relatively well reflected in policies and capacities to bring results are sufficient. Exceptions are mainly tightened to changes in farming requiring substantial investment (storage capacities renewal etc.), some particular issues are not well implemented (like pesticides application compliance check).

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

There are still numerous farm activities, which are not addressed at all or even more some policy tools are used rarely. Generally policies are more oriented into down stream approach solving incidents more than working with prevention. Regulatory instruments are not enforced in a way, there is compliance check if farmers are keeping rules but there are used in case there is proven breach and recorded incident. In line with this approach the most lacking measures are in-group of information instruments like advisory, information provision etc., some activities are not targeted enough like financial support of investment to facilities preventing water pollution (manure storage facilities), which could give more moral power to organisation controlling those to penalised and to be more strong in case of non-compliance. Generally there are no projects targeted into change of farmers activities in DRB because whole system is relying more to regular policy tools (of course there are scientific projects but not targeted into practical proposals for farmers.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

What is mostly needed are: supporting measures, which could efficiently assist to farmers in relevant activities (manure storage renewal etc.).

Second mostly lacking measures are those targeted to awareness rising (advisory, training, publications, campaigns etc.).

There are not any projects targeted specifically to Danube river basing in Czech Republic, but there is question if such specific activity should be done only in this region because the situation is more or less the same around the country. Water pollution prevention needs targeted activities everywhere.

5.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Internet search for legislation:

<http://www.env.cz/www/zakon.nsf/2a434831dcbe8c3fc12564e900675b1b?OpenView>

<http://www.mze.cz>

Internet search for agricultural policies

<http://www.mze.cz>

Interviews with:

Research Institute for Plant Production

Mr. Jan Klir

Institute for Agricultural and Food Information

Mr. Olaf Deutsch

State Phytosanitary Administration

Mr. Klumbar

Czech Inspection for Environment

Water Research Institute

Mrs. Hana Prachalova, Mr. Pavel Rosendorf.

Agricultural Agency – regional office of Ministry of Agriculture

Annex 6

Hungary

6 Hungary

POLICY REVIEW QUESTIONNAIRE

Country under Review	Hungary
Name of Expert(s)	Ferenc TAR

6.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	
Description of strategy: Policy objectives:	No
Farm wastes – manure and slurry?	No
Description of strategy: Policy objectives:	
Pesticides?	No
Description of strategy: Policy objectives:	
Soil erosion?	No
Description of strategy: Policy objectives:	

6.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

6.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation ⁹¹	General Reg.?	Specific Reg.?	Pollution Issue ⁹²	Farming Practices Required/ Restricted by Regulatory Instruments ⁹³	Level of Implementation & Enforcement ⁹⁴	Reasons for Poor Implementation and/or Enforcement ⁹⁵
Regulation 8./2001. (I.26.) on store, trade and use of fertilisers		✓	Pollution by nutrient	Storage and use of fertilisers	2	n.a.
Law on agricultural land LV./1994.	✓		Framework for other legislation	Good Farming Practice, soil protection, soil sampling, nutrient management	2	n.a.
Environmental Protection Law No. LIII./1995.	✓		Framework for other legislation,	Framework for: water pollution protection, waste management, etc.	1	Note. Too general to show efficiency for pollution prevention

⁹¹ Please add additional information when necessary. For example if the legislation is area specific indicate% of national area affected etc. – however only include area specific legislation if it is relevant to the Danube catchment

⁹² Nutrients, farm wastes, pesticides or soil erosion

⁹³ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

⁹⁴ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

⁹⁵ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Government decree No. 49/2001 about protection of waters against nitrate pollution (EU Nitrate Directive)		✓	Water pollution by nitrates	Use (timing, amount – max. 170 kg N/ha, according to locality type, according to type of crops and soils, close to waters, on slopes), storage – locality, capacity, of fertilisers and manure. Farming on slopes concerning erosion.	2	n.a.
Law No. XXXV./2000. on plant protection		✓	Pollution by pesticides	Approving proper products, machinery (their regular control),	1	n.a.
Regulation no. 5/2001 on plant protection activities			Pollution by pesticides	Rules to be applied during plant protection activities		n.a.
Regulation on organic farming		✓	Pesticides, nutrients, soil erosion	Avoiding pesticides use, whole system of sensitive farming practices	2	n.a.

Note: n.a. means not available.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ⁹⁶	Reasons for Any Lack of Implementation Capacity ⁹⁷
Ministry of Agriculture	Policies for water protection in agriculture Supporting policies to improve situation in water pollution prevention	2	Not targeted in prevention of pollution. Lack of finances for situation improvement (investment supports for example storage facilities)

⁹⁶ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

⁹⁷ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Ministry of Environment	Legislation in water protection (with MoA), monitoring of water quality, control, policies for river system/ watersheds renewal, NVZs design,	2	In some areas still lack of coordination with MoA
Plant protection authority	Approval of pesticides (including rules of their use), approval of machinery for application, storage of pesticides, control of plant protection activities	2	Well-organised, but lacking capacity for day-to-day control of farming practice
Inspectorate for Environment	Control of legislation observation – especially Water act and related legislation	2	Well organised but lacking personal capacity to increase enforcement

6.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ⁹⁸	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ⁹⁹	Reasons for Poor Implementation ¹⁰⁰
Agri-environment measures		✓	Nutrient and pesticides pollution	Environmentally friendly farm management techniques	1-2	(funding could be higher)
Government decree about vulnerable zones	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters), soil erosion practices-contour farming etc.	2	No capacity for control
Investment support – MoA and SAPARD		✓	Nutrients pollution	Manure storage facilities renewal	2	Lack of targeting and lack of funding
Regulation on fertilisers	✓		Nutrients pollution	Manure storage facilities renewal, record keeping, timing of fertilisers use and locations with restriction (into waters)	2	Difficult to enforce rules need heavy investment
Law about plant protection	✓		Pesticides	Proper storage, use only approved machinery and pesticides according to guidelines on product	1	Due to low capacity this is hardly controlled and enforced.

⁹⁸ Nutrients, farm wastes, pesticides or soil erosion

⁹⁹ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹⁰⁰ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ¹⁰¹	Reasons for Any Lack of Implementation Capacity ¹⁰²
Ministry of Agriculture (MoA)	Support of farmers for environmentally friendly activities	1-2	Limited budget
Ministry of Environment (MoE)	Support of municipalities for activities associated to support for water management facilities (Environment Fund)	2	Not targeted to farmers, small budget, lack of coordination with MoA
SAPARD Agency	Provide farmers with grants – investment support for manure storage facilities renewal	2	Limited budget, too strict rules

¹⁰¹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁰² Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

6.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/ Information Instrument	Yes/No	Pollution Issue ¹⁰³	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake ¹⁰⁴	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	YES	Nutrients	Fertilisers application rates	2	Independent advisors are more focused to economical advice
Technical assistance by providers of farm inputs	YES	Pesticides	To keep rules provided on product label (avoid water in application, mind air drift)	2	No interest of pesticides providers
Demonstration farms	Yes	Pesticides, nutrients	Part of the National Agri-environment Programme, environmentally sound techniques, integrated pest management, organic farming, nutrient management, erosion control, etc.	1	Should be broadened, extended
Publications and other information materials	YES	Pesticides, fertilisers use,	Sensitive pesticides and fertilisers use (close to waters etc.), reduction of application rates, the most economic use etc.	2	No updated, new publications

¹⁰³ Nutrients, farm wastes, pesticides or soil erosion

¹⁰⁴ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Training	YES	Nutrients, farm waste	Application rates, nutrients management according to site	2	More advisors needed, farmers participating in NAEP have obligation to do it
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ¹⁰⁵	Reasons for Any Lack of Implementation Capacity ¹⁰⁶
Plant Production Service	Participating in advice and training for farmers in nitrate vulnerable zones programmes	2	

6.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

¹⁰⁵ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁰⁶ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Project	Project Budget	Pollution Issue ¹⁰⁷	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ¹⁰⁸
No projects aimed in changes of farming practices in Danube river basin				

Institutional Arrangements

Project	Institution/Organisation	Responsibility

¹⁰⁷ Nutrients, farm wastes, pesticides or soil erosion

¹⁰⁸ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

6.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

No (this is planned to be introduced as part of EU co-funded agri-environment schemes from 2004 under Rural Development Plan)	
no	
Crop nutrients	
Animal wastes	
Pesticides	
Soil Erosion	
Other (please specify)	
n/a	
n/a	

6.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for **each farming practice that is listed**, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use \sqrt where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Storage of manure	Nutrients	High – minimum capacities, types of storage	✓				2
Storage of manure	Nutrients	High – minimum capacities, types of storage		✓			3
Storage of fertilisers	Nutrients	Medium – rules how to store to avoid leaking	✓				2
Nutrients use, storage	Nutrients	High – rules of nutrients use (timing, amount, water proximity etc.)			✓		2
Erosion prevention – grassland introduction	Erosion - silt	High – significant part of activity was targeted on slopes		✓			2
Pesticides use	Pesticides	High – proper machinery approval, storage rules observation, application rules keeping	✓				1
Pesticides use	Pesticides	High – application rates, environmentally sound methods		✓			1
Pesticides use	Pesticides	High – keeping			✓		1
Organic farming	Nutrients, pesticides and erosion pollution	High especially concerning pesticides use, erosion and to some extent concerning nutrients. Potential will grow with total area devoted to organic farming growth.	✓	✓	✓		1
Arable conversion to grassland	Erosion Nutrients	High	✓				2
Limits of pesticides and fertilizers use in nature and water protected areas	Nutrients pesticide	High	✓				2

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

Water pollution control issues are addressed and relatively well implemented by policies but capacities to enforce them are insufficient. More capacity in the different implementing bodies controlling any form of water pollution is required and more information, training and awareness raising activities would be desirable.

Furthermore, significantly higher budget should be available to support investment aiding water protection issues.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

Policies are targeted to a downstream approach solving incidents more than supporting prevention. Regulatory instruments are not enforced completely, there is due to lack of personal capacities compliance check of farmers does not work sufficiently. There is a need to increase the share of incentives (agri-environment measures) advisory systems investments and information type measures rather than introducing more legislative type measures. In short, the available policy (legislation) framework is appropriate to manage the issue, more implementing capacity and more economic/information measures are required to fulfil the objectives.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

There should be a targeted programme for manure storage renewal, (investments!!!), special (local/regional) projects targeted Danube Programme, with exhaustive demo and information campaigns on the issue as people/farmers many times are not aware of the problem they cause also not able to find means, solution to improve their operations thus contribute actively to better agricultural management to support water pollution control. .

6.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Internet search for environmental legislation:	http://www.ktm.hu
Internet search for agricultural policies	http://www.fvm.hu
Interviews with:	
Department for Plant Production	Mr. István Eke
State Plant Protection Service	Mr. Tibor Halmágyi
Ministry of Environment	Mr. Gábor Hasznos
Water management Department	Mrs. Eszter Havas

Annex 7

Moldova

7 Moldova

POLICY REVIEW QUESTIONNAIRE

Country under Review	Moldova
Name of Expert(s)	Alexandru Prisacari

7.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	NO
Description of strategy: Harmonization of the national legislation with the European Union (EU) Nitrates Directive (91/676/EEC) Policy objectives: realization of the comparative analysis and the policy review of the national and the EU legislation; preparation of a strategic implementation plan with recommendations for the harmonization of the existing legislation with the EU Nitrates Directive; determination of the institutional capacity and the responsibilities for laws observance; elaboration of the Code of Good Agricultural Practices	
Farm wastes – manure and slurry?	NO
Description of strategy: Implementation of the National Programme on Production and Municipal Wastes Management for 2000-2010 period Policy objectives: observance of the Law on Wastes of Production and Consumption; improvement of existing legislation on wastes storage and management; elaboration of the wastes monitoring system, including farm wastes; harmonization of the national legislation with the EU Directives and standards	
Pesticides?	NO
Description of strategy: Development and implementation of legal basis on production, storage, transportation and use of pesticides, their import and export aimed to reduce their adverse impacts for environment Policy objectives: observance of the Law on Regime of Harmful Products and Substances and the Plan on Measures for Centralizing Storage and Disposal of Obsolete Unused and Prohibited Pesticides; harmonization of the national legislation with the EU Directives and Regulations	
Soil erosion?	NO
Description of strategy: Implementation of the National Complex Program concerning the increase of soil fertility for 2001-2020 period Policy objectives: development of a draft Law on soil conservation, taking as a model the existing European laws; improvement of existing legislation, regulating the responsibilities for all persons, undertaking works that lead to degradation of soil layers; elaboration of a national map of degraded areas, using the experience of European countries; development of the Code of Good Agricultural Practices	

7.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

7.2.1 Regulatory Instruments and Measures

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/ Restricted by Regulatory Instruments	Level of Implementation & Enforcement	Reasons for Poor Implementation and/or Enforcement
Law on Environmental Protection (1993)	√		Nutrients, farm wastes, pesticides	The prohibition of all fertilizers, pesticides and manure storage and use in water protection zones; the prohibition of pesticides use in period of crops bloom	2 = partial implementation and enforcement	The administration lacks the financial resources to check compliance; insufficient ecological education of population
Water Code (1993)	√		Nutrients, farm wastes, pesticides	The prohibition of water pollution with fertilizers, pesticides, farm wastes	3=not implemented	Many articles of the Water Code have a declaratory character and do not ensure the implementation of the law
Law on Drinking Water (1999)	√		Nutrients, farm wastes, pesticides	For protection Zone 1: the prohibition of fertilizers, manure, pesticides storage and use within 50 m of shallow wells and 30 m of deep wells	2 = partial implementation and enforcement	Poor control of the responsible authorities; the farmers do not believe they cause any decline in water quality decline
The general requirements on water protection from fertilizers pollution. State Standard 17.1.3.11-84		√	Nutrients	The prohibition of fertilizers storage within 50 m of water sources; the prohibition of fertilizers and its packages storage in uncovered places; the limits of nitrogen fertilizers application in autumn	2 = partial implementation and enforcement	Poor control of the responsible authority and insufficient knowledge of the farmers in this pollution issue

Law on Protection Areas and Forested Strips for Rivers and Reservoirs (1995)		√	Nutrients, farm wastes, pesticides	The prohibition of fertilizers, pesticides and manure storage and application within 300 m of a river or lake; the prohibition of animals pasturing in water protection zones	2 = partial implementation and enforcement	The administration lacks the financial resources to check compliance; the farmers do not believe they cause any decline in water quality decline
Law on Plant Protection (1999)	√		Pesticides	The prohibition of pesticides using which did not pass the test and are not recorded in Moldova	2 = partial implementation and enforcement	This pollution issue actually is not considered as a serious problem by the implementing authorities
List of chemical and biologic preparations permitted for use in agriculture (1997)		√	Pesticides	There are indicated: the norm of consumption; the mode, period and limits of using; the period of last treatment until the harvest; the maximum number of treatment	2 = partial implementation and enforcement	Insufficient control of the responsible authorities on correct pesticides use by the farmers; insufficient know-ledge of the farmers in this pollution issue
Law on Regime of Harmful Products and Substances (1997)	√		Nutrients, pesticides	The general requirements concerning the produce, storage, use of harmful substances (pesticides, fertilizers)	2 = partial implementation and enforcement	Insufficient control of the responsible authorities for pesticides and fertilizers evidence in agriculture
On Measures for Centralizing Storage and Disposal of Obsolete Unused and Prohibited Pesticides (2001)		√	Pesticides	The concentration of pesticides wastes in 3-4 typical storehouses in every judets	3=not implemented	The lacks of financial resources to check compliance
Law on Wastes of Production and Consumption (1997)	√		Farm wastes	The prohibition of wastes throwing into waters and water protection and sanitary zones	2 = partial implementation and enforcement	The farmers do not believe they cause any decline in water quality decline
Law on Payment for Environmental Pollution (1998)		√	Farm wastes	The law has introduced payments for pollutants discharge into water bodies and also for farm wastes disposal sites	3=not implemented	Poor organisation and control of the responsible authorities in implementing the “polluter pays” principle

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments	Reasons for Any Lack of Implementation Capacity
Ministry of Ecology, Construction and Territorial Development	Provides the state control concerning the observance of the laws and elaborates the legislative acts	1 = high capacity for implementation	The lacks of financial resources and policy-making experience
State Ecological Inspectorate	Provides the state control concerning the observance of the laws and carries out the monitoring of surface water quality, waste water	3 = low capacity for implementation	Poor organisation and management; poor co-operation with public local administration
State Service “Hidrometeo”	Carries out the monitoring of surface water quantity and quality	1 = high capacity for implementation	The lacks of financial resources and adequately trained staff
Ministry of Agriculture and Food Industry	Provides the rational use of water resources and delimitation of water protection zones; implements the activities concerning the management of the fertilizers, pesticides and farm wastes	1 = high capacity for implementation	The lack of financial resources and policy-making experience
State Service for Plant Protection	Provides the phyto-sanitary control concerning the observance of storage, transportation and use of pesticides	3 = low capacity for implementation	Poor organisation and management; lack of adequately trained staff; poor co-operation with NGOs
State Association for Soil Protection	Organizes and co-ordinates the activities in field of protection and re-establishment of soil	3 = low capacity for implementation	The lacks of financial resources and adequately trained staff
State Water Management Consortium “Apele Moldovei”	Provides the rational use of water resources; carries out the monitoring of surface water quantity	1 = high capacity for implementation	The lacks of financial resources and adequately trained staff

Ministry of Health	Carries out the sanitary control concerning the observance of the laws; institutes and conducts the National Book of the chemical harmful substances	1 = high capacity for implementation	Lack of financial resources
Sanitary-Hygienic Republican Centre	Carries out of the sanitary supervision concerning the storage, transport and use of the fertilizers, pesticides and farm wastes	1 = high capacity for implementation	Poor co-operation with public local administration

7.2.2 Economic Instruments and Measures

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation	Reasons for Poor Implementation
The payments for the waste-water pollutants discharge into water bodies and waste disposal sites	√		Farm wastes	Storage of farm wastes in permitted places and in limits of established specifications	2 = implementation is a limited success	The administration lacks the financial resources to fully implement a payment system
The fines for soil pollution with pesticides and farm wastes and causing of soil erosion	√		Farm wastes, pesticides, soil erosion	The prohibition of soil pollution with pesticides and farm wastes, annihilation of fertile layer of soil	3 = unsuccessful implementation	Poor organisation and control of the responsible authorities to implement a penalty system
The fines for non-observance of the requirements on evidence, storage and use of pesticides	√		Pesticides	The prohibition of infringement of the standards on evidence, storage and use of pesticides, application of pesticides in sanitary and water protection zones	2 = implementation is a limited success	The administration lacks the financial resources to fully implement a penalty system

The fines for infringement of the water protection rules	√		Nutrients, farm wastes, pesticides, soil erosion	The prohibition of water pollution with nutrients, farm wastes, pesticides and provocation of soil erosion by the water	3 = unsuccessful implementation	Poor organisation and control of the responsible authorities to implement a penalty system
The fiscal facilities for the reduction of water pollution		√	Nutrients, farm wastes, pesticides	The application of nutrient, manure and integrated pest management	3 = unsuccessful implementation	The fiscal facilities offered to the farmers are too low to encourage uptake

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments	Reasons for Any Lack of Implementation Capacity
State Ecological Inspectorate	Provides the implementation and application of penalty system for water pollution with nutrients, farm wastes and pesticides	3 = low capacity for implementation	Poor organisation and management; poor co-operation with public local administration
Regional Ecological Agencies	Estimates: the mode of payment calculation for pollutants discharge and storage of farm wastes; the mode of fiscal facilities granting for reduction of water pollution	3 = low capacity for implementation	The lacks of staff and policy-making experience
Sanitary-Hygienic Republican Centre	Provides the implementation and application of penalty system for nonobservance of the sanitary requirements at the storage and use of pesticides, farm wastes and fertilizers	1 = high capacity for implementation	Poor co-operation with public local administration

7.2.3 Advisory/Information Instruments and Measures

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged by the Advisory/ Informative Instrument	Level of Implementation and/or Uptake	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of environmentally-friendly agricultural practices: crop rotation, anti-erosion tillage, nutrient and manure management, integrated pest management	2 = implementation is a limited success	Economic instability in agricultural sector reduces the efficiency of technical assistance of the advisory services
Technical assistance by State advisory service	No				
Technical assistance by providers of farm inputs	Yes	Nutrients, pesticides	Promotion of nutrient and integrated pest management	2 = implementation is a limited success	Economic instability in agricultural sector reduces the efficiency of technical assistance of the providers of farm inputs
Education and awareness-raising campaigns	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, manure storage, crop rotation, organic farming	2 = implementation is a limited success	Insufficient of printed and audio-visual ecological advertising means; poor co-operation among NGOs
Demonstration farms	Yes	Nutrients, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation, strip cropping	2 = implementation is a limited success	Division of farms land in 3-5 small sectors impede the implementation of "good agricultural practice"
Learning by sharing of ideas among the farmers	Yes	Nutrients, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation	2 = implementation is a limited success	Poor co-operation among NGOs
Publications and other information materials	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, crop rotation, manure storage	2 = implementation is a limited success	Insufficient promotion of informative materials by the advisory services

Training	Yes	Nutrients, farm wastes, pesticides, soil erosion	Promotion of nutrient and integrated pest management, manure storage, crop rotation, strip cropping	2 = implementation is a limited success	Not all categories of farmers are involved in training programmes
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Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments	Reasons for Any Lack of Implementation Capacity
Agency for Consultancy and Training in Agriculture - ACSA NGO	Development of a national agricultural advisory system: foundation of regional advisory centres; preparation of training and information materials; development and implementation of training programmes for regional and local consultants; promotion of education and awareness-raising campaigns; preparation and implementation of special agricultural programmes (demonstration plots and farms, seminars, fairs)	1 = high capacity for implementation	Lack of adequately trained regional and local staff
BIOS NGO	Development and implementation of training programmes and demonstration plots; preparation of information materials	1 = high capacity for implementation	Poor co-operation with other NGOs
BIOTICA NGO	Preparation of educational programmes and information materials; promotion of awareness-raising campaigns	1 = high capacity for implementation	Poor co-operation with other NGOs
AGROinform NGO	Preparation of educational programmes and information materials; promotion of awareness-raising campaigns	1 = high capacity for implementation	Lack of adequately trained regional and local staff
Regional Environmental Centre – REC Moldova	Promotion of educational and awareness-raising campaigns; preparation of information materials	1 = high capacity for implementation	Lack of policy-making experience

National Farmers' Federation	Preparation and implementation of special agricultural programmes: demonstration plots and farms, seminars, fairs; promotion of awareness-raising campaigns	1 = high capacity for implementation	Poor co-operation with NGOs
MoldAgroChim Ltd	Preparation and implementation of special agricultural programmes: demonstration plots, seminars	1 = high capacity for implementation	Poor co-operation with NGOs

7.2.4 Project-based Instruments and Measures

Project	Project Budget	Pollution Issue	Farming Practices Encouraged/ Discouraged by the Project Activities	Comments/Observations
First Agricultural Project	11.8 MUSD	Pesticides	One of the scopes of this Project was the implementation of integrated pest management	The project produced a strong impact on the environment by introducing integrated pest management
Containment actions and remediation plan for an agricultural pesticide dump near Vulcanesti	0.10 MECU	Pesticides	Development of a remediation plan for pesticide dump	The remediation plan was completed and serves as a model for the development of similar plans in Moldova
Prut River Tributaries: Environmental Review, Protection Strategy and Options	1.30 MECU	Nutrients, soil erosion, farm wastes	Promotion of nutrient management, crop rotation, conservation tillage, manure storage, organic farming	The Pilot Basin Management Plan for the Ciuhur river serves as a model for the development of similar plans for other river catchments
Agricultural Pollution Control Project (APCP)	5.00 MUSD	Nutrients, farm wastes, soil erosion	Promotion of nutrient and manure management, conservation tillage, crop rotation, strip cropping, buffer strips, grassed waterways, pastures management, organic farming	The main project objective is to reduce nutrient loads from agricultural non-point sources to the Danube River and Black Sea. The Project is to be started in 2003

Institutional Arrangements

Project	Institution/Organisation	Responsibility
First Agricultural Project	World Bank financial support; Ministry of Agriculture and Food Industry	Promotion and implementation of the integrated pest management and sustainable agricultural practices in Moldova
Containment actions and remediation plan for an agricultural pesticide dump near Vulcanesti	TACIS financial support; National Institute of Ecology	Completion of the site investigation risk assessment report and preparation of a remediation plan to protect the water quality of the downstream environment
Prut River Tributaries: Environmental Review, Protection Strategy and Options	TACIS financial support; National Institute of Ecology	Development of the Prut Tributaries catchment Review Report in order to determine the key issues affecting the water quality and to recommend actions to be undertaken
Agricultural Pollution Control Project	GEF financial support; Ministry of Ecology, Construction and Territorial Development; Ministry of Agriculture and Food Industry	Implementation of the EU Nitrates Directive; development of the Code of Good Agricultural Practices; development of Organic Farming Policy; promotion of Public Awareness Campaign and Replication Strategy

7.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

Does the concept of “good” or “best agricultural practice” exist in your country?

The concept “good agricultural practice” exists in Moldova as a notion, but in fact it is not implemented

Does this include the reduction of water pollution by agriculture?

Farmers apply few procedures which reduce the risk of water pollution

Does this include water pollution caused by:

Crop nutrients	Nitrogen fertilizers
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Animal wastes	Manure
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Pesticides	Fungicides (copper sulfate)
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Soil Erosion	Soil erosion is the most important pollution source in Moldova
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Other (please specify)	
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How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet?)

The booklet “The methods of soil protection. Your Guide for 30 ecological methods in farmer activity”, elaborated by USDA, was translated from English into Romanian in 1998

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Agricultural Pollution Control Project (APCP)

- The practical measures on implementation of “good agricultural practice” in Moldova are developed in following Programmes and Project:
- the National Complex Programme concerning the increase of soil fertility for 2001-2020 period envisages the elaboration of the Law on soil conservation and the implementation of agrotechnic and ameliorative procedures to combat soil erosion;
- one of the scopes of the National Programme on Production and Municipal Wastes Management for 2000-2010 period is to implement activities regarding farm waste, phytotechnic waste and mud management;
- Agricultural Pollution Control Project aims at implementing in Moldova the EU Nitrates Directive, at implementing the Organic Farming System and at elaborating the Code of Good Agricultural Practices, in accordance with the peculiarity of agricultural management in Moldova.

7.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Nutrient management	Nutrients	“High” – the prohibition fertilizers storage and use within 50 m of shallow wells and 30 m of deep wells; the prohibition of fertilizers storage within 300 m of a river or lake; the limits of nitrogen fertilizers application in autumn – significantly reduce the risk of water pollution	√		√	√	2 = moderately successful
Integrated pest management	Pesticides	“High” – the prohibition of pesticides storage and use within 300 m of a river or lake; the prohibition of pesticides use in period of crops bloom – significantly reduce the risk of water pollution	√		√	√	2 = moderately successful
Manure management	Farm wastes	“High” – the prohibition of manure storage within 300 m of river or lake; the prohibition of manure storage and use within 50 m of shallow wells and 30 m of deep wells – significantly reduce the risk of water pollution	√		√		3 = unsuccessful
Crop rotation	Nutrients, pesticides, soil erosion	“High” – crop rotation protects water quality by preventing excess nutrients or pesticides from penetrating water supplies and also cut soil erosion	√		√	√	2 = moderately successful
Strip cropping	Soil erosion	“High” – cultivation of crops in alternating strips reduces soil erosion and protects water quality	√		√		3 = unsuccessful
Conservation tillage	Soil erosion	“High” – crop residues prevent soil erosion and protect water quality	√		√		3 = unsuccessful

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

Better results of the “policy mix” in Moldova have been obtained on the decrease of water pollution with nutrients and pesticides. It is due, to a certain extent, to the fact that in the last years the quantity of mineral fertilizers and pesticides used in agriculture has reduced essentially. An insignificant effect of the “policy mix” can be noticed at the decrease of water pollution with nutrients from farm wastes and the pollution caused by soil erosion.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

The efficiency of the “policy mix” is reduced due to a number of reasons: there is a lack of many Laws (the Law on Nitrates, the Law on soil conservation, the Code of Good Agricultural Practices etc); the principle “polluter pays” is not being implemented; a low number of campaigns of awareness-raising and ecological training of farmers.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

All policy instruments need to be developed and implemented in Moldova. The most important legal and practical measures for overcoming the gaps of the “policy mix” are: preparation and implementation of the Law on Nitrates, the Law on soil conservation, the Code of Good Agricultural Practices; determination of the institutional capacity and the responsibilities for laws observance; development and implementation of the “polluter pays” principle; preparation and implementation of educational and training ecological programmes for farmers.

7.5 INFORMATION SOURCES

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24. UN / ECE The Republic of Moldova: Environmental Performance Review. Geneva, 1998
25. UNDP / GEF Danube Pollution Reduction Programme, National Review, 1998. Moldova. Executive Summary
26. UNDP / GEF Danube River Pollution Reduction Programme, Strategic Action Plan for the Danube River Basin – Revision, 1999
27. UNDP / GEF Danube River Pollution Reduction Programme, Danube River Pollution Reduction Programme Report, 1999
28. UNDP / GEF Transboundary Analysis Report plus Annexes, 1999

During the realization of the Review I had meetings with following officials:

- Dr Vasile Stegarescu, scientific secretary of the National Institute of Ecology;
- Mr Victor Egorov, deputy head of the State Ecological Inspectorate;
- Mr Viorel Gutu, deputy head of the Department for Agrarian Policy, Restructuring, Rural Development and Legislation of the Ministry of Agriculture and Food Industry;
- Dr Mihai Machidon, head of the Division for Phytotechny of the Ministry of Agriculture and Food Industry;
- Mr Ion Bulgac, head of the Division for Soil Fertilization of the Ministry of Agriculture and Food Industry;
- Mr Nicolae Danilov, head of the Division for Plant Protection of the Ministry of Agriculture and Food Industry

Annex 8

Romania

8 Romania

POLICY REVIEW QUESTIONNAIRE

Country under Review	ROMANIA
Name of Expert(s)	Viviana Bandol

8.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
<p>Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:</p> <p>There is not any clearly defined strategy for control of water pollution caused by agriculture. You may find some topics related to this aspect in other different strategies of the agriculture or environment, but none of them contains specific chapters for this matter. Thus, I mentioned that there isn't any clearly strategy. This could be also a good proposal for a future project.</p>	
Nutrients – nitrogen and phosphorus?	No
<p>Description of strategy:</p> <p>Policy objectives:</p>	
Farm wastes – manure and slurry?	No
<p>Description of strategy:</p> <p>Policy objectives:</p>	
Pesticides?	No
<p>Description of strategy:</p> <p>Policy objectives:</p>	
Soil erosion?	No
<p>Description of strategy:</p> <p>Policy objectives:</p>	

8.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

8.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with ✓ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation ¹⁰⁹	General Reg.?	Specific Reg.?	Pollution Issue ¹¹⁰	Farming Practices Required/ Restricted by Regulatory Instruments ¹¹¹	Level of Implementation & Enforcement ¹¹²	Reasons for Poor Implementation and/or Enforcement ¹¹³
Water Law no. 107/1996,	√		Nutrients, pesticides	This law settles the emissions resulted from punctual sources. Within the law there are made some specifications concerning categories of water quality: <i>1st category</i> - includes water that can be processed to become drinking water, water used in livestock and fish farms. It includes 57% of the river reference length.	2	This law is the essential piece of national legislation that rules the control of water pollution in Romania. A weak point of the law is that in certain cases its provisions are in essence so general that is impossible for applying in practice. As a result their legal value becomes in principle deprived of importance.
				<i>2nd category</i> - includes water that can be used in fish farms, industrial purposes, and urban management. It includes 28% of the river reference length.		

¹⁰⁹ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

¹¹⁰ Nutrients, farm wastes, pesticides or soil erosion

¹¹¹ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

¹¹² For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

¹¹³ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

				<i>3rd category</i> - includes water that can be used for irrigation, power stations, and other industrial uses. It includes about 6% of the river reference length.		
				<i>4th category (degraded)</i> - includes water that cannot be used in most cases and represents a threat to public health and environment. It includes about 9% of the river reference length.		
Law no. 137 For Environmental Protection from 17/02/2000, republished	√		<ul style="list-style-type: none"> • Regime of pesticides and fertilisers • Protection of water and aquatic ecosystems • Atmosphere protection • Protection of soil, subsoil and land ecosystems 	<p>Within the law for section “Regime of pesticides and fertilisers” are stipulated: The obligations for natural and legal persons who produce, trade and/or use the fertilisers and pesticides (some of them relevant for our project I’ll present below):</p> <ul style="list-style-type: none"> • to administer pesticides only with aviation means and with authorisation of Agencies for Environmental Protection, Sanitary Directorates and County Councils on a honey-bearing basis and pastoral bee keeping, according to regulations in force; • to apply in the period of plants flowering of which pollination is made by insects only the treatments with pesticides which are selective compared to pollination insects; • shall not use any dangerous lure, except for the special authorised cases. 	2	<p>Although Romania has a legislative framework regarding the management of water resources, it doesn’t refer accordingly to the problems of agricultural pollution control.</p> <p>The reason of this shortcoming isn’t the result of fundamental weakness of the existent legislative framework.</p> <p>As an example, within the framework law it isn’t clear from what size an agricultural company needs environment authorisations if it doesn’t require construction works.</p>

				<p>Within the law for section “Protection of water and aquatic ecosystems” are stipulated:</p> <p>The obligations for natural and legal persons who produce, trade and/or use the fertilisers and pesticides are (some of them relevant for our project I’ll present below):</p>		
				<p>a) to observe the standards for emission and quality of waters</p> <p>b) shall not throw and storage on the banks, into the river bed and in wet areas any kind of wastes and do not admit in these ones explosive, electric power, narcotics, or other dangerous substances;</p> <p>c) shall not wash in natural waters cars, equipments and package which contains oils, liquid fuels, dangerous substances, lubricants or pesticides;</p> <p>d) to undertake all the works for rehabilitation of natural resources, ensuring the migration aquatic fauna and rehabilitation of water quality during the period foreseen on the environment accord/authorisation and to survey the impact area;</p>		

				e) to endow, in the case of owing crafts, floating platforms or sea drillings with installations for storage or treatment wastes, filtering installations of waste waters and junctions for discharging of wastes in banks or floating installations;		
				Within the law for section “Protection of soil, subsoil and land ecosystems” are stipulated the following: The land owners with any title have the following obligations: a) to prevent, based on regulations in force deterioration of soils quality; b) not to burn the stubble, rush, bushes or vegetation without authorisation issued by competent authorities for environment protection.		
Ministry of Health and Family – STAS no1342/1991 regarding the quality of drinking water		√	Drinking water and water used in households	STAS defines the admissible level of nitrites 45mg/l into drinking water, which is lower than 50mg/l allowed by European legislation.	1	Within the document there isn’t any mention about the minimum level of nitrites. Also there isn’t clearly defined if the provisions of drinking water standards are applied to waters from fountains.

Government Decision No. 964/10.13. 2000 for approval of Action Plan regarding the water protection against pollution with nitrates resulted from agricultural sources	√	√	<p>a) decreasing of waters pollution caused by nitrates resulted from agricultural sources;</p> <p>b) prevention of nitrates pollution;</p> <p>c) optimising and rationing of chemical and organic fertilisers which comprise compounds of nitrate.</p>	<ul style="list-style-type: none"> The maximum admissible limit of nitrate concentration into the waters shall be below 25 mg/l. <p>For each animal farm the quantity of fertilisers of animal origin annually applied on the land, including manure shall not exceed the specific norm/hectare. The specific norm/hectare is represented through the quantity of administered fertiliser which contains 170 kg of nitrate. Derogation can be made for the first 4 years of implementation, when the specific norm/hectare of 210kg is allowed.</p>	1	The pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; Farmers do not believe they cause any decline in water quality decline, poor co-operation between Ministries which blocks the decision-making
				<p>Limitation the number of fertilisers applied on the land according to good farming practices, taking into account the characteristic of vulnerable areas, especially by</p> <p>a) land slope, characteristics and type of soil, climatic conditions, irrigation systems etc.;</p> <p>b) agricultural practices and land use modalities, including the system of crop rotation ;</p> <p>The GD set out a general framework of Good Agricultural Practices.</p>		

<p>Government Decision no. 118/ 02.17.2002 regarding the approval of Action Plan for decreasing of pollution into the aquatic environment and underground waters, caused by removing of dangerous substances</p>		√	<p>Prevention of pollution of surface and underground waters against dangerous substances and restriction of pollution consequences over the aquatic environment and humane health.</p>	<p>The GD set out:</p> <ul style="list-style-type: none"> • a list comprising selected substances based on more characteristics – toxicity, persistency, bio-accumulation - except for the substances which are both harmless against aquatic biologic components or are transformed into substances which become harmless, as well as substances with a minimum effect over the aquatic ecological systems but may cause the apparition of modification into the evacuation area. • Criteria for identification of polluted waters both with dangerous substances or liable to such pollution. <p>A table with maximum limits of dangerous substances at evacuation on surface waters;</p>	1	<p>The pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with;</p> <p>Farmers do not believe they cause any decline in water quality decline, poor co-operation between Ministries which blocks the decision-making</p>
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Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments¹¹⁴	Reasons for Any Lack of Implementation Capacity¹¹⁵
Ministry of Waters and Environment Protection;	a) to elaborate and to promote the national strategy for environment and sustainable development; b) to elaborate the sectors strategies and environment policies as well as environment planning in correlation with the urbanism and land arrangement planning;	2	lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries which blocks the decision-making; poor co-operation with NGO sector
	c) to set up the organisational framework which allows the access to information and a participatory approach to decisions regarding environment policy, regulations, authorising procedures, development the plans of territory and urbanism;		
	d) to establish the national system of integrated monitoring for all environment indicators and for inspection system regarding environment;		
	e) to apply incentives and punishing economic key factors and control the observance of environment regulations;		

¹¹⁴ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹¹⁵ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

	f) to issue the environment permits and authorisations and to organise and to decide the application of the phases for procedure of environment impact assessment.		
	g) To train and to educate the population		
Ministry of Agriculture Food and Forestry;	<p>a) To elaborate the lists with pesticides and fertilisers from the country and foreign countries, as well as the maximum admitted limits of concentrations with pesticides according to international standards</p> <p>b) To train and to educate the population;</p> <p>c) To establish at national level the laboratory network for analyse and control of fertilisers, pesticides as well as for the control of concentrations of fertilisers into the soil, crops, fodder and food products;</p> <p>d) To observe and control the way of implementation of regulations regarding pesticides and fertilisers;</p> <p>e) to elaborate regulations regarding systems for agriculture, crop technologies for plants, and for animal breeding, forest regeneration, wood harvesting, collecting and transport and quality standards of soils in order to maintain and to improve them, elimination of negative consequences over the terrestrial and aquatic ecosystems and ensuring the preservation of specific functions, biodiversity, and natural habitats;</p>	2	lack of staff; lack of adequately trained staff; poor co-operation between Ministries which blocks decision-making; poor co-operation with NGO sector;

	<p>f) to keep the evidence of lands: inadequate for agricultural production, and to offer upon the request of owners technical assistance for improving or changing the usufruct;</p> <p>g) to guide and to follow the technical for land arrangement works;</p> <p>h) to guide and to offer technical assistance upon the request of agricultural producers the most adequate technologies for management and improvement of soils.</p>		
Ministry of health and family	<p>a) supervise the evolution of population health according to environment quality;</p> <p>b) control the water quality and food products;</p> <p>c) elaborate in collaboration with Ministry of waters and environment protection the hygiene norms and control their observance;</p>	2	<p>lack of staff; lack of adequately trained staff; poor co-operation between Ministries which blocks decision-making; poor co-operation with NGO sector;</p>

8.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ¹¹⁶	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ¹¹⁷	Reasons for Poor Implementation ¹¹⁸
Fines	√		Nutrients, pesticides, farm wastes	a) Melting of linden, flax, hemp or other textile plants without permit or authorisation away the places special designed and equipped on these purposes; b) Storage of any types materials on river beds or banks of water flows, water channels, dams, lakes, ponds and see-wall or in their protected areas; c) Washing in water flows, lakes and their beds of animals disinfected with toxic substances by using of detergents and packages which contains pesticides or other dangerous substances; d) Planting, cutting or destroying of trees, bushes, perennial cultures and saplings from water flows, basins of water storage dams and their banks or their protected areas; e) Grazing within protected areas of water flows;	2	the administration lacks the financial resources to fully implement a penalty system; the administration lacks of staff to control the observance of laws provisions;

¹¹⁶ Nutrients, farm wastes, pesticides or soil erosion

¹¹⁷ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹¹⁸ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that; that the economic incentives offered to farmers are too low to encourage uptake etc.

Fines and penalties	√		Nutrients, pesticides	a) Storage and using of pesticides, nutrients or other toxic and dangerous substances within protected areas;	2	the administration lacks the financial resources to fully implement a penalty system; the administration lacks of staff to control the observance of laws provisions;
Fines	√		Nutrients, pesticides, farm wastes	a) burning the stubble, rush, bushes or vegetation from the protected areas; b) grubbing of wood vegetation outside the forest fund, placed on lands with very steep slops or at the minimum limit of forest vegetation; c) using of dangerous baits and electric means for killing of wild animals and fish on purpose of trade or consumption;	2	the administration lacks the financial resources to fully implement a penalty system; the administration lacks of staff to control the observance of laws provisions;

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ¹¹⁹	Reasons for Any Lack of Implementation Capacity ¹²⁰
Ministry of Waters and Environmental Protection	a) to apply stimulating and punishing economic key factors and control the observance of environment regulations; b) to establish the national system of integrated monitoring for all environment indicators and for inspection system regarding environment;	1	lack of staff; lack of adequately trained staff; poor co-operation between Ministries which blocks decision-making; lack of a coherent action plan to be followed
Ministry of Agriculture Food and Forestry;	a) To establish at national level the laboratory network for analyse and control of fertilisers, pesticides as well as for the control of concentrations of fertilisers into the soil, crops, fodder and food products; b) To observe and control the way of implementation of regulations regarding pesticides and fertilisers;	1	lack of staff; lack of adequately trained staff; poor co-operation between Ministries which blocks decision-making; lack of a coherent action plan to be followed;

¹¹⁹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹²⁰ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

8.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Due to a very poor development of this issue the information were difficult to obtain. Although in the past, were developed at the local level projects on this subject, there isn't a synoptic table of these. In this respect I couldn't obtain for this section and the next one, some information.

Advisory/Information Instrument	Yes/No	Pollution Issue ¹²¹	Farming Practices Encouraged/ Discouraged by the Advisory/Informative Instrument	Level of Implementation and/or Uptake ¹²²	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	No				
Technical assistance by State advisory service	Yes	farm wastes	The farmers who live in the mountain area benefit of training for farm management in which are included courses for management of waste management in animal farms	2	Lack of financial resources; small number of courses/year; weak dissemination of results;
Technical assistance by providers of farm inputs	No				
Education and awareness-raising campaigns	No				

¹²¹ Nutrients, farm wastes, pesticides or soil erosion

¹²² For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Demonstration farms	No				
Learning by sharing of ideas among the farmers	No				
Publications and other information materials	No availability of information				
Training	No				
Other (please describe):	No				

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ¹²³	Reasons for Any Lack of Implementation Capacity ¹²⁴
Ministry of Agriculture Food and Forestry – County Directorates of Agriculture and Food;	<ul style="list-style-type: none"> to guide and to offer technical assistance upon the request of agricultural producers the most adequate technologies for management and improvement of soils. 	2	lack of financial resources; lack of staff; lack of adequately trained staff; lack of promotional materials (leaflets, brochures, workshops, promotional campaigns);
National Agency for Agriculture Consultancy/ National Agency of Mountain Area	<ul style="list-style-type: none"> to support the agricultural producers by providing technical assistance in the field of using the most adequate technologies for animal and vegetal farms 	2	lack of financial resources; lack of staff; lack of adequately trained staff; lack of promotional materials (leaflets, brochures, workshops, promotional campaigns);

8.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

¹²³ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹²⁴ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Project	Project Budget	Pollution Issue ¹²⁵	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ¹²⁶
The “Agricultural Pollution Control Project”	financed by GEF (4,5 million US\$) and the Government (450,000 US\$)	The overall project development objective is to increase significantly the use of environment-friendly agricultural practices in the project area and thereby reduce pollution from agricultural sources in Romania to the Danube River and Black Sea.	<ul style="list-style-type: none"> • Reducing the discharge of nutrients and other agricultural pollutants and yield substantial benefits in terms of improved quality of Romanian surface and ground waters and the Black Sea through land and water management of the Calarasi region and ecological rehabilitation of two agricultural polders. • Activities in the Calarasi Judet (US\$9.21m) Manure management Practices (US\$5.27m). This sub-component will provide grants for the manure collection and application in the seven comunas. Grants on a cost –sharing basis of about 70% of total cost will be provided for the construction of village level solid waste manure facilities and small storage bunkers with effluent collection facilities at the household level, as well as supply of equipment for manure handling and spearing. 	The project is the first of its kind under the umbrella of the Black Sea /Danube Strategic Partnership-Nutrient Reduction Investment Found

¹²⁵ Nutrients, farm wastes, pesticides or soil erosion

¹²⁶ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

			<ul style="list-style-type: none">• Promotion of environment – friendly agricultural practices (US\$2.48m). This sub-component will promote the adoption of better agricultural practices that would improve agriculture production while reducing nutrient discharge pollution for agriculture. The proposal activities would include: I) the promotion of environmentally friendly agricultural practices; and ii) demonstration program of integrate crop and nutrient management, including crop rotation and efficient application of organic and inorganic fertiliser based on soil tests using soil testing kits provided by the project. This component will consider adapting the Code of Best Agricultural Practices used by EU countries according to the EC Council Directive regarding water protection against pollution with nutrients originated from agriculture - 91/676/CEE (Nitrates Directive). Promotion of regional co-operation and replication activities.	
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The project for promotion of Environment Strategic Analyse - Bilateral project between Romania and Nederland		Nutrients, farm wastes, soil erosion	Sustainable development of Peris Commune, in the context of rehabilitation the pigs breeding farm with more than 60,000 heads; a) Observing of production technologies form the pigs breeding farm;	The analysed case takes part from a series of identical situation existent in Romania, due to agricultural policy promoted until 1990 at big complex farms for pigs breeding.
			b) Adequate applying of disinfections and rodent control methods for farm; c) Observing the feeding recipes of pigs taking into account age, breed and categories (in order to prevent the appearance of mineral imbalances) with impact over the feed assimilation and characteristics of waste products – waste water and mud; d) Proportioning the pig number as against wastewater treatment capacity and land surfaces capacity on which the residual products are applied.	The determinations made and solutions found through the project could be easily extended to other cases (in Romania until 1990 were functioning more than 40 big complex farms for pig breeding with a number of more than 30,000 heads), taking into account that these types of farms had an identical management and technologies of breeding.

Institutional Arrangements

Project	Institution/Organisation	Responsibility
The “Agricultural Pollution Control Project”	Ministry of Waters and Environmental Protection and Ministry of Agriculture, Food and Forestry	To create legislative framework for an enabling policy environment for afforestation in agricultural polders. To support the implementation of the project, by providing logistic framework, setting up of Ministerial Committee, facilitate the institutional arrangements.

8.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

Yes	
Yes	
Crop nutrients	Yes
Animal wastes	Yes
Pesticides	Yes
Soil Erosion	Yes
Other (please specify)	
The Code of Good Agricultural Practice is under preparation through a World Bank project. Its completion is foreseen to be in the third quarter of 2003.	
This project shall promote public awareness and mechanisms for replicability. The project envisaged as a demonstration activity in Calarasi County in the southern part of Romania, along the lower Danube, may provide replicable lessons for introduction of similar practices in other districts of Romania as well as other Black Sea Riparian Countries.	

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country:

1.Fertilization:

- Adapting the fertilisation and its duration to the type of crop and soil is considered to be a good agricultural practice.
- Moreover, the evaluation of the nutrient share is made depending on the local crop conditions as well as on the expected productivity and requested quality level of the products.
- The great solubility of the nitrate is of an essential importance regarding their presence in the surface water, existing a great infiltration probability in the underground waters. For this reason it is necessary to permanently evaluate the content of the surface water.
- In cases where land irrigation is performed it is also necessary a periodical measurement of the water content on different depths of the pedological water spout in order to establish the efficiency as well as to eliminate the danger of water excess which thus becomes a favourable factor in water pollution.

2.The utilisation of mineral fertilisers:

- When fertilisation with this kind of fertiliser is performed there are necessary some precautions:
- Adopting a maximum prudence when the agricultural land shows a flow phenomenon; The risk is maximum when the lands is saturated with water or frozen;
- Avoiding intermediary storage of the fertilisers in opened land without protection; adopting a maximum security measures in the case of storage, handling and administrating of liquid chemical fertilisers. Thus the storage basins must be made of corrosion resistant materials with corresponding volumes.
- Avoiding the fertilisation on deep ploughed in order to impose the nitrate penetration towards underground waters;
- Within the greenhouse crops is compulsory to be avoided that the waters resulting from irrigation which contain fertilisers to be evacuated outside.

3.Fertilisation with manure and other waste resulting from poultry and animal husbandry

- Instant incorporation of liquid and semi-liquid dejection and manure in bare soil in order to decrease flowing and nitrogen gas loss as well as to avoid the transformations of organic substances through oxidation into toxic and pest metabolites
- Utilising of feed recipe for the purpose of modifying the nitrogen content of the manure and dejection through a richer content in phosphorus and potassium and a decreased protein content, etc.
- Administration of rich ammonium and uric nitrogen dejection is to be made in a way which enables their instant assimilation by the plants without becoming toxic and polluting

4.Soil erosion control

- Ploughing shall be uniform in deep without seeing transition from one furrow to another and when the soil is sufficiently wet thus the furrow regardless of soil texture to overflow behind the plough.
- The direction of the ploughing shall rotate every year
- The normal ploughings shall be made in spring and autumn for autumn or spring sowing
- Deep ploughing shall be made in autumn on heavy soils.
- The ploughing shall not be made after harvesting in case of strong rains and storms. Even if this work is delayed the land must be kept covered both with straw and vegetal remains, or maintaining hidden culture where applicable.
- In order to decrease the mineralization of nitrates in soil it is recommended to adopt the technology of seeding directly in the stubble. Shall be avoided as much as possible the deep ploughing, increased work speed and soil aeration through scarification.

- On slope lands the ploughing shall strictly follow the level curves and when this is not possible the ploughing shall be done with slight inclination and on short distances.
- The ploughing shall follow the land configuration and shall be parallel with the existing drains and channels, maintaining an unploughed belt near by.

5. Good agricultural practices for optimising the use of fertilisers.

- The quantity of manure necessary per hectare and per year depends on the type of soil, crop and climate. These quantities shall be set according to the necessary nitrogen in soil, taking into account the existent nitrogen supplies in soil, thus the specific norm to be of 170-210 kg of nitrogen per hectare and per year. The maximum limit shall be applied when:
 - Slightly fermented manure is to be used;
 - Is to be used on heavy soils;
 - Is to be applied on crops with long period of vegetation or which take over high quantities of nitrogen;
 - Is to be applied in areas with high level of precipitations;
- The spreading of the manure on land must be done as early as possible during the season of crop growth in order to maximise the nutrients take over by the crops and to minimise the risk of pollution. Every year at least half of the quantity of manure produced during the winter must be spread until the 1st of July and the rest until 30th of September.
- The application of the manure and other concentrated organic fertilisers on land out of season must be avoided.

8.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Storage of any types materials on river beds or banks of water flows, water channels, dams, lakes, ponds and see-wall or in their protected areas;	Pesticides, farm waste	High , prohibition of storage of any types of materials of a river or lake significantly reduce the risk of water pollution	√	√			2
Planting, cutting or destroying of trees, bushes, perennial cultures and saplings from water flows, basins of water storage dams and their banks or their protected areas;	Soil erosion	Moderate, the protection of trees, bushes and perennial cultures confer a protection against soil erosion.	√	√			2
Grazing within protected areas of water flows;	Soil erosion	Moderate, the prohibition of grazing within water flows confers a protection against soil erosion.	√	√			2

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

At present, however, there is an inadequate supply of information to meet the growing demand for understanding agri-environmental relationships and sustainable agriculture so as to: identify the environmental problems, risks and benefits related to agriculture; improve the targeting of programmes that address agri-environmental issues; facilitate the monitoring and assessment of policies and programmes. Therefore, the need to develop an analytical framework within which these linkages can be examined, and to identify indicators to assist policy makers, including monitoring progress towards achieving sustainable agriculture, has become a stringent problem. While basic information on administrative structures and competencies is generally available, the degree of existing analysis that has been undertaken on their systems and effectiveness is quite low.

The distribution of responsibilities between the national and local administrative levels is well defined (especially in terms of implementation and enforcement of the *acquis communautaire*).

The administrative capacity, the effectiveness of the personnel and technical equipment for monitoring, inspection and enforcement are below the needs. Understaffing is due to budget restrictions; unattractive salaries make recruitment difficult. Experience is limited in applying economic instruments to environment protection, in human and project management and especially in working with other stakeholders (i.e. NGOs, the private sector).

Public bodies in charge have a fairly good experience in legislation drafting, transposition and implementation. However, channels of *communication* between various ministries are not well established. Significant changes are required to achieve adequate levels of co-operation between ministries. Co-ordination between the national and regional level is also poor. Overall, Romanian institutions have a relatively recent experience in the field of environmental protection. They have a good technical expertise/experience, but limited experience in management, economics and enforcement of the environmental legislation. The main weaknesses are: insufficient coordination at the central level between the ministries involved, with more clearly defined responsibilities and a better communication; limited experience in introducing economic instruments and in managing human resources and projects; limited staff engaged in the overall process and lack of equipment at the local level.

Budget decentralisation also affects local authorities, which from 2001 have the responsibility for implementing investment-heavy Directives. Such a responsibility may prove very challenging, taking into account their limited budgets.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

As far as the quality of the environment is concerned, there is a significant gap between Romania and European Union against the requests of the environment standards. This is rooted in the low investment level and in ignoring, to a certain extent, of the provisions of the new national laws.

Charges for permitting have been introduced as of June 2000. Nevertheless, non-compliance fees are too low to act as a disincentive for polluters (the level of fees has not been revised and indexed to inflation every year).

Compliance with the permits should be regularly monitored and inspected by the Environmental Protection Agencies. In reality, due to under-staffing and limited laboratory capacity, industrial polluters are required to monitor and report their emissions. This rarely happens, so emissions are derived through calculations rather than measurement and monitoring. The number of activities subject to permitting is large and this creates many permit applications, which are simply processed without sufficient consideration of the potential environmental impacts of the activity proposed.

The major difficulty is to identify agricultural sources of pollution, as these are often diffuse and may have effects with a long time lag. Determining the contribution of diffuse pollution sources, such as nutrient run-off from fields, to a given environmental impact is more difficult than for point sources. Also, water is not always an appropriate sampling medium for many farm contaminants which are stored in sediment or may bio-accumulate. Romania has no data on different types of water pollutants specific to agriculture, although more general data are available.

Romania has not yet developed risk-based methods to measure water quality, especially as these can be directly linked to agriculture. Such approaches may provide early warning of potential problems and are not costly to monitor for national administrations.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

Due to the fact that 46% of Romania territory is represented by rural space in the next years the rural development policy shall be strengthened through various measures. Almost 45% of population live in rural space. The ensuring the rural infrastructure (drinking water, sewage and rural roads) represents a priority at the same time with the development of an environmental protection policy. At the commune level shall be built waste water treatment and waste tips. A strong awareness campaign for training of farmers in the field of agri-environmental measures combined with demonstrative farms shall be promoted.

On the other hand, because the average agricultural plot is 2,3 hectares, the agriculture policy shall be restructured, to support association of farmers by offering incentives for their associations, and for obtained products. Also big farms in areas with high consumption potential and ecological medium and small farms in other areas should orient the agriculture policy. This type of restructuring allows the appliance of legislation and implementation of *acquis communautaire*.

For farm breeding sector it could be assessed and then applied the associative system of animal breeding. Thus, in one or more communes could be breed a small number of animals by individual households, avoiding in this manner the high environmental pollution risk.

8.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Meetings with:

- Mr. Alexandru Radulescu – Directorate of Land Arrangements – MAFF
- Mrs. Teodora Aldescu – Directorate of Ecological Products – MAFF
- Mrs. Rodica Matei – Directorate Rural Development and Programs -MAFF
- Lucian Luca – World Bank Mission Romania
- Mrs. Liliana Bara – International Programs – MWEP
- Mrs. Elena Tatomir – Directorate for Vegetal Production - MAFF

Databases: Official Journal

Legis Software

Reports:

- Report over the regulation framework which rules the agricultural pollution control in Romania – World Bank
- National Plan for Agriculture and Rural Development 2000-2006, Romania
- Good Agricultural Practices – draft may/2003 - MAFF
- Study case for Sustainable development of Peris Commune, in the context of rehabilitation the pigs breeding farm – MAFF
- UNDP- Common Country Assessment – Environment – 2003/draft .

Annex 9

Serbia and Montenegro



9 Serbia and Montenegro

POLICY REVIEW QUESTIONNAIRE

Country under Review	Serbia and Montenegro
Name of Expert(s)	Miroslav Spasojevic

9.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	No
Description of strategy: Policy objectives:	
Farm wastes – manure and slurry?	No
Description of strategy: Policy objectives:	
Pesticides?	No
Description of strategy: Policy objectives: Some elements of the policy exist in the document Resolution on Policy of Environmental Protection in FR Yugoslavia accepted by Federal Government of FRY.(Official Gazette of FRY, no.31 June 1993). In Chapter IV Programs for realization of the accepted Policy, there is program area 3. Protection of the soil, which says: Within this Program FRY will create appropriate conditions for realization of this policy in the part which relates to: Development of integral protection and rational use of the ground and soil. Planning and realization of comprehensive program for the protection of the soil. Defining measures to decrease soil degradation as result of the inappropriate use of chemicals, as well as a result of the pollution with heavy metals and other ecotoxicological substances Including biological measures for prevention of the pests Re-cultivation and use of abandoned and degraded lands. This is a document of the former FRY. However, in the last 10 years there was no new document of such nature.	
Soil erosion?	No
Description of strategy: Policy objectives: Same as for pesticides.	

Note: Former FRY accepted a concept of sustainable development in beginning of 90s. However, implementation of environmentally sustainable development has been suspended during the period of economic sanctions imposed by UN. In 1993 following documents were adopted: Environmental Protection Policy, Resolution on the Policy of Protection the Environment in FRY and Resolution on the Policy of Preserving Biodiversity in FRY. These three documents, particularly the first one, contain elements of the strategy and policy concerning control of the water pollution caused by agriculture, too.

9.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

9.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation¹²⁷	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/ Restricted by Regulatory Instruments¹²⁹	Level of Implementation & Enforcement¹³⁰	Reasons for Poor Implementation and/or Enforcement¹³¹
Law on Environmental Protection of R. of Serbia (Official Gazette no.49/92)	*		Water protection Art. 23 -27	Art. 23. Prohibition to release polluted waters in surface and ground waters if contain harmful and hazardous substances.	2	Regulatory acts that would define concrete measures were not developed
	*		Soil Protection Art. 28-31	Art. 28 Prohibition of unregulated use mineral and organic fertilisers, and plant protection substances...	2	According to art. 28 minister of environment in agreement with minister of agriculture and water resources will determine regulatory acts concerning acceptable quantities of harmful and hazardous substances that can be used (fertilizers and pesticides). However some of this regulatory acts were not prepared.

¹²⁷ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

¹²⁸ Nutrients, farm wastes, pesticides or soil erosion

¹²⁹ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

¹³⁰ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

¹³¹ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Note: Danube catchment area in Serbia and Montenegro is almost identical with the territory of Republic Serbia. Very small portion of basin belongs to R. Montenegro. In view of this fact information in this document contains information for R. Serbia.

Law on Water (Off. Gazette no 46/91)	*		Water protection Art. 53 - 63	Art. 56 Stipulates prohibition of release and intake of harmful and hazardous substances in surface and ground waters and sewerage system if it will result in pollution.	2	According to same article 56 ministers of environment and water resources will determine regulatory acts in this field. Some of the these acts were not prepared.
Law on Agricultural Land (Off. G. 49/1992, with later amendments)	*	Pollution by different chemical substances including pesticides.	Chapter II Protection of agricultural land Art. 7 to 16	Art. 14 prohibits release and storing of hazardous and harmful substances at the agricultural land and irrigation channels in quantities that could damage and change production quality of the agricultural land and water for irrigation purposes. Art. 16. To protect and maintain chemical and biological characteristics of the agricultural land and securing appropriate use of organic and mineral fertilisers owner and user of the land should implement systematic control of the fertility of the soil , and producers and importers of mineral fertilizers have to comply with regulations of its quality.	2 3	This type of pollution is not actually considered as serious problem by implementing authorities, particularly in last decade. Partly due the fact that farmers do not believe that they cause any decline in water quality, and partly due to economic problems. In last decade there was sharp decline in use of mineral fertilizers and pesticides, due to difficult economic situation.

Rule on kind and content of measures which owner of agricultural land should apply (Off. G. no.33, May 1993)	*	This short rule describes kind and content of the measures to be applied by the user of the agricultural land.	Art. 5. Fertilising and protection of the crops and agricultural land	Defines that measures to fertilise and protect agricultural land means use of organic and mineral fertilisers and protection from weeds, diseases and pests.	3	Although this Rule is of compulsory nature it is very difficult to control its application, except in the situation if there is a treat of some specific disease. Rule itself has no penalty provisions.
The Law on Plant Protection (Off. G. of FRY no. 24 from 15 May 1998)		This law regulates protection of the plants of harmful organisms, plant health control in internal and external traffic and traffic of the plant protection substances and plant nutrition substances.	Law has X Chapters. In connection with this exercise following chapters are to be mentioned: III Prevention and elimination of harmful organisms V Control of plants, pesticides and fertilisers which are in traffic VI registration and Use of the pesticides and fertilisers VII Control of the implementation of this law	Law establish set of measures and regulations to protect plant protection. It has very close relation with control of the pollution of the agricultural land with pesticides and fertilisers.	1	

Low on agricultural farming (Off. G. FRY No.28 / 2000)		*	Defines conditions or organic farming	Art. 2. Stipulates that organic farming excludes use of pesticides and fertilisers of synthetic – chemical origin, growth regulators and additives. Also organic farming does not allow use of genetically modified organisms.	1	
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Institutional Arrangements

Institution/Organisation	Responsibility	Regulatory Instruments ¹³²	Reasons for Any Lack of Implementation Capacity ¹³³
Ministry of agriculture and water resources	Among the other, this Ministry is in charge of rural development and development of agricultural production; protection and use of agricultural land; Control of production and internal and external traffic of the plants, chemicals for protection of the plants and fertilisers; control of application of chemical for plant protection . Directorate for waters, as a part of the this Ministry is in charge water policy, multifunctional use of the waters, water supply , except distribution, protection from waters, protection of waters, rational use of the waters, water regime and other.	2	There are several reasons. In last decade there were frequent changes in organizational structure in charge of the water management. Water issue is divided between 6 ministries and one Republican Institute. Lack of the resources for realization of already agreed measures.

¹³² For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹³³ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff and adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Ministry for protection of natural resources and environment	Among the others, this Ministry is charge; of development and implementation of the system of protection and sustainable use of the natural resources, i.e. of the resources (air, water, soil, mineral resources, forests, fishes, wild animal and plant species; elaboration of the ground water balances, and so on.	2	Main problem in realization of the mandate of this ministry is the fact that new Law on protection of the natural resources and environment is not in force yet, and structure of the ministry is accommodated to the new law. Draft was prepared year ago and it is expected that it will enter Parliamentary procedure this autumn. The other problem that there is overlapping in competencies with other ministries in issues concerning water protection.
Ministry of Health	Among the other , this Ministry is in charge of control of the water for human needs.	1	
Ministry of Energy and Mining	Among the other, this ministry is in charge of water resources to be use for production of energy in hydro power plants .	1	
Ministry of Civil Engineering and Physical Planning	Among the others this Ministry is in charge preparation of Physical Plans for the whole territory and its implementation	2	In the last decade here was not strict implementation of the Physical Plans, and it resulted with degradation of agricultural land and degrading and pollution of natural and water resources.
Ministry for local Government	Among the other, this Ministry is in charge of organization of communal activities at the local level. That means organization of water distribution and sewerage systems .	2	Mostly to the lack of financial resources.

Republican Hydro meteorological Institute	Among the others this Institute is in charge of professional activities in connection with hydro meteorological, meteorological and agro meteorological observations and realization of approved measures for control of the quality of the air, surface and ground waters and precipitations.	1	
Public water resource enterprise Srbijavode (Founded in accordance with Water Law) , with its three Centres, Dunav, in Novi Sad, Sava in Belgrade and Morava in Nis.	Among the others, this public enterprise is in charge of: Management of water resources and coordination of the water use between different users, Monitoring, maintenance and development of water regime, Maintenance and reconstruction of the water object; Organization and implementation of the measures for water protection, Organization and implementation of water information system, and other, according the law and Statute of organization.	2	Lack of coordination between different parts of the enterprise. Recently Autonomous Province of Vojvodina established its public enterprise, in charge of water resources in its territory that could create some overlapping in responsibilities. Lack of funds for implementation of activities.
Serbian Chamber of Economy Association for Agriculture, Food and Tobacco Industry and Water Power Engineering	Promotion of economic potentials in these fields and establishing contacts with foreign partners	2	After constitution of the new state Union and dissolution of the Federal chamber of economy it is in process of transformation .
Agricultural Faculties in Belgrade and Novi Sad			

<p>Institutes for Agricultural research in Belgrade and Novi Sad;</p> <p>Water resources Institute “J. Cerni” , Belgrade and many other institutes</p>		2	<p>These institutes have international reputation, but the main problem in last decade was isolation from international cooperation and activities. Since October 2002, this trend has changed.</p> <p>Economic situation had its negative consequences for the further development of the most of the scientific and development institutes and organizations,</p>
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9.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ¹³⁴	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ¹³⁵	Reasons for Poor Implementation ¹³⁶
Law on plant protection (Off. G. FRZ no.24 1998)	+		Pesticides,		1	
Rules on pesticides and fertiliser packing and disposal (Off. G. FRZ no. 59, 2001)	+		Pesticides, fertilisers	Pesticides and fertilisers packing storing and disposal (protection of the soil and water)	2	Inspections should be more frequent. Lack of funds to make inspections on regular basis(
Ordinance on banned and restricted use of plant protection products	+		Pesticides	Legal instrument to harmonize our standards with international.	1	
Law on organic agriculture (Off. G. RS no. 28, 2000(+ (indirectly)	Pesticides, nutrients, fertilizers, erosion	Encourages farmers to transfer to organic farming. There is no direct economic support, but indirect as they obtain official certificate for their products.	2	It is necessary to improve public campaigns for this type of farming. Economic situation in country is not in favour of this activity.

¹³⁴ Nutrients, farm wastes, pesticides or soil erosion

¹³⁵ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹³⁶ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Law on the Fund for stimulation of development of agricultural regions (Off. G. FRY no. 21 2001)		+	Nutrients, pesticides, fertilisers, erosion	Financially support to farmers, under favourable conditions, to introduce new agricultural technologies, switch to organic farming and similar.	2	Main problem is lack of funds to allow all interested parties to use this incentive.
Law on Environmental protection (Off. G. RS no.66 from 1992 Chapter IV- Protection of soil – art. 26 -31)	+		Fertilizers, pesticides, Hazardous waste, solid and liquid waste	Establish criteria for monitoring and planning documents for its realization.	2	Lack of funds to realize. There is kind of vacuum in realization since it is expected that new Law will be introduced very soon.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ¹³⁷	Reasons for Any Lack of Implementation Capacity ¹³⁸
Ministry of Agriculture and Water resources a. Republican Directorate for water resources b. Sector for Agriculture and Food Industry c. Republican Agricultural Service	a. Among the other duties this Directorate is in charge of the following activities: water regime; protection of the water; protection of waters (surface and ground) from the pollution; erosion and torrent protection; water use; enforcement of law and other technical regulations b. This sector is in charge of realization of the agreed policy in the field of primary agricultural production and food industry, and among the other duties it is responsible for : <ul style="list-style-type: none"> • utilization, organization and protection of agricultural land ; • plant protection from diseases, pests and weeds; • organization and monitoring of the agricultural services. c. Republican agricultural Service has its head office in Belgrade and 26 regional offices. It offers professional services in connection with agricultural production.	2. 2. 1.	a. This is newly organized Directorate. Main problem is coordination of the activities with other entities which are in charge of “water issues”. Lack of necessary budgetary resources is important obstacle for implementation of its responsibilities. b. Well organized activities, but more focus should be oriented to primary agricultural production. Lack of the resources. c. This sector has long tradition. Main problem is lack of budgetary resources

¹³⁷ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹³⁸ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Ministry of Protection of Natural Resources and environment	According to new Law on protection of Natural Resources and Environment this ministry will have important role in realization of integral management of natural resources, including competences over the water and soil.	2.	Ministry is still in initial phase of its organization. Much effort should be invested in coordination with other ministries in charge of water and soil. Ministry is organized according to the new Environmental law, which is not accepted by Parliament yet. It is expected that after adoption of the law there will be organized Environmental Agency which will have its competencies in this field, too.
Fund for stimulation of development of agricultural regions (Founded by the Law-Off. Gazette FRY no.21 2001)	Funds are used for following purposes a. for improvements of technology of S&M agricultural farmers; b. accommodation of standards and the quality to the needs of EU market; c. stimulation of organic agriculture d. financing of ecological projects in agriculture	2.	Well designed program of work of the fund , which suffers luck of the appropriate funds for its full implementation.

9.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Issue ¹³⁹	Farming Practices Encouraged/ Discouraged by the Advisory/Informative Instrument	Level of Implementation and/or Uptake ¹⁴⁰	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	yes	Nutrients, pesticides	Consultations concerning improvement of soil conditions and appropriate use of fertilisers	2	This type of assistance is mostly focused to production issues, and as a secondary issue to pollution control. In principle, public awareness, on pollution from agricultural and particularly diffuse sources is not at the appropriate level.
Technical assistance by State advisory service	yes	Nutrients, farm wastes, pesticides , soil erosion	Appropriate timing and type of fertilisers to be used, erosion prevention, storage and use of manure, nutrients	3	This segment of information service is well organized. But even in this case it is more oriented to advisory services concerning agricultural and agro economic measures.
Technical assistance by providers of farm inputs	yes	Fertilisers, pesticides	Appropriate use of the products, particularly of the pesticides	2	Providers of the farm inputs are focused to advisory services conc. characteristics of their inputs products.
Education and awareness-raising campaigns	yes	Pesticides, fertilisers, farm wastes	Campaigns for introduction of new agro technical measures in agr. production, campaigns in favour of organic agriculture, advisory services concerning appropriate use of pesticides, appropriate use of fertilisers, measures to improve soil quality		Most of the campaigns are organized by NGOs or other organizations of civil society, usually as result of some difficult environmental problems or incidents. Still, there is no systematic approach in organizing this type of campaigns.

¹³⁹ Nutrients, farm wastes, pesticides or soil erosion

¹⁴⁰ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

			(calcinations, phosphatization, humusation..) and other .		Generally, citizens are not aware of the fact that there is significant diffuse pollution from agricultural sector. There is awareness of serious point pollution from agricultural production, only.
Demonstration farms	Yes	Biological re-cultivation 30 ha; Transformation of non-arable to arable land 125 ha; Preparation of plans and projects for protection, use and organization of agricultural land 30,000 ha	All aspects in connection with of organization of agricultural production, including pollution control.	2.	Well designed programme, but the results will much depend on appropriate financial support.
Learning by sharing of ideas among the farmers	Yes	Fertilisers, pesticides	Very common for this region due to fact that private farming has long tradition. More focused on production than on environmental issues per se.	2	In principle this has positive impact, but in some cases it could have negative impact, as it could favour retrograde approach in agricultural practices.
Publications and other information materials	Yes	Fertilisers, pesticides, soil erosion, nutrients	These information materials covering all aspects of agricultural production, but much less concerning environmental consequences, like water pollution	2	It has limited effect. Small farmers are less inclined to invest in environmental protection. At this moment main problem is lack of appropriate financial means for that purpose.
Training	Yes	Fertilisers, pesticides, farm waste	Application rates, nutrients, organic farming	2	Still. This is not organized systematically, except as a part of educational process in agro technical schools.

Other (please describe):		All components in connection with agricultural production and pollution	Advisory services offered by highly professional experts, participating in specialised radio and TV programmes.	1	This type of activity is very popular within rural areas.
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Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments ¹⁴¹	Reasons for Any Lack of Implementation Capacity ¹⁴²
Republican Agricultural Service, one of the 5 Departments of Ministry of Agriculture and Water Resources is at the top of the Pyramid covering more than 40 Agricultural Institutes, Centres and Stations located in 26 regions		2	Better organization and cooperation with other government organizations. Lack of funds for implementation of plans and programs.
Independent Institutes and Organizations which are co-operating with Ministry of Agriculture and Water Resources			General comment for all independent institutes and organizations This organization has high level potential but their financing is only partly secured from budgetary sources. For the other part they have to compete at the market which, in this moment, can offer limited opportunities.
Institute for research in agriculture, Belgrade	Biotechnical sciences, Soil science, plant production and protection	2	

¹⁴¹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁴² Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Institute for science application in agriculture, Belgrade	Biotechnical sciences, agronomy, cattle breeding selection and technologies in agricultural production	2	
Institute for plant protection and environment, Belgrade	Natural sciences, plant protection, entomology, toxicology	2	
Soil research institute, Belgrade	Soil sciences	2	
Crop and vegetable scientific institute, Novi Sad	Soil science, plant production , plant genetics	2	
Water resources research institute “Jaroslav Cerni”, Belgrade	Water resources management,	2	
Agrohemija- Business Association of Fertiliser Producers, Belgrade	Mineral fertiliser production, joint service	2	
Pesticides producers business association, Belgrade	Pesticides production, joint services	2	

9.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Yes

Does this include the reduction of water pollution by agriculture?

Yes

Does this include water pollution caused by:

Crop nutrients	No
Animal wastes	Yes
Pesticides	Yes
Soil Erosion	Yes

Other (please specify)	
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How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet?

There is no such publication on “good” or “best agricultural practice”. There are publications on organic farming and a set of legal regulations on organic farming.

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Only those programmes and projects that had been mentioned.

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

9.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Manure storage	Nutrients	High – very modest capacities, particularly at small farms			+		2
Storage of fertilisers	Nutrients	Medium – there is appropriate experience how to handle it without risk of pollution	+		+		1
Pesticides use	Pesticides	High – proper equipment, storage regulations, detailed instructions and regulations on use and ban	+		+	+	1
Erosion prevention	Erosion	High – were intensive activities prevention and rehabilitation of erosion	+	+		+	
Organic farming	Nutrients, pesticides, erosion	High – reduction of pollution by pesticides, erosion control, decreased level of nutrients	+	+			
Conversion of non-arable to arable land	Erosion	Medium, concentrated to erosion control	+	+			

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

There is need for substantial improvements of policy instrument which will address agricultural pollution problems. This is particularly valid for agricultural pollution coming from diffuse sources.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

As already mentioned there is a need to improve regulatory and policy measures do prevent diffuse pollution from agricultural sources. In a case of point sources of pollution regulatory package is more appropriate but very often its enforcement is rather inefficient. Great problem in solving pollution coming from agricultural activities is lack of the funds to be invested in this field, at all levels.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

There is need for implementation of set of measures of different nature. Beginning with upgrading of the public awareness, direct economic support and different incentives measures to up grading of existing regulatory settings and its better enforcement. However, orientation of the country to harmonize with EU regulation in this field, offers good grounds to do this in more organized and efficient way.

9.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Reports:

- Study on sustainable development of Serbia water resources (prepared for the Ministry of agriculture and Water Management by Institute for Water Resources research “J. Cerni”)
- Report on the state of environment in and development in FR Yugoslavia - 2002 (prepared by Federal Ministry for Health, Labour and social Policy – Department for environmental protection)
- Water management programme for Republic of Serbia (Multidisciplinary team coordinated by Institute “j. Cerni”)
- Strategy for the FRY - 2002 (Prepared by European bank fro reconstruction and development)
- Breaking with the past – The path to stability and growth (World bank – 2001)
- Danube Pollution Reduction Programme – National Review for FRY Volume I –IV)
- Strategy of Economic development of Serbia till 2010 (Multidisciplinary team coordinated by Ministry for ST&D-2002)
- Pesticides in agriculture and forestry in FRY – fourteenth edition 2002 (N.Mitic and others)
- Set of relevant legal documents (quoted in the text)

Note: In this document have been quoted legal documents which has been published in Official Gazette of former FRY and Official Gazette of republic Serbia. Laws of the FR Yugoslavia are still valid, unless they are not officially announced as non valid and/or changed with new legal regulation.

Internet sources

- Ministry of Agriculture & Water Management: www.minpolj.sr.gov.yu
- Ministry of Science, Technologies & Development : www.mntr.sr.gov.yu/mntr/sr/topic.
- Ministry of Protection of Natural Resources & Environment: ekabin@ekoserb.sr.gov.yu
- Association of Cooperatives of Serbia: [www.zasrbije.co,yu](http://www.zasrbije.co.yu)
- Federal Statistics Bureau: www.szs.sv.gov.yu/

Interviews

- | | |
|---|-------------------------|
| • Ministry of Agriculture and Water Resources | Mr. Bogoljub Bogdanovic |
| • Ministry of Protection of Natural Resources and Environment | Mr. Miodrag Gavric |
| • Water Resources Research Institute “J.Cerni” | Mr. Miodrag Milovanovic |

Annex 10

Slovakia



10 Slovakia

POLICY REVIEW QUESTIONNAIRE

Country under Review	Slovak Republic
Name of Expert(s)	Miroslava Cierna

10.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	
<p>Description of strategy:</p> <p>Priorities of water management policy are set up in the Concept of Water Management Policy in the Slovak Republic that defines the legislative, economic, environmental and administration instruments for five years (2001-2005). Environmental objective, which is of merely general importance, address in long term (global state) priorities of water management that aims to achieve high degree of environmental protection in harmony with sustainable development.</p> <p>The Concept of Agricultural and Food Policy (AFP) for Slovak Republic defines objective for agriculture and food industry for five years period (2000-2005). Strategic aim is to create conditions for multifunctional agriculture in harmony with European Union, that ensure appropriate price of food products and healthy food for population while conserving natural resources, supporting rural development, and considering socio-economic conditions in Slovakia. Five pillars of the AFP supports investments into market of special commodities, less favorable areas, modernization of technologies, enhancement of EU accession process and environmental measures.</p> <p>National Environmental Action Plan, that implement the “Strategy, Principles and Priorities of the State Environmental Policy of the Slovak Republic”, set long term and short term priorities for protection of environment in Slovakia for open period from 2003.</p> <p>National Action Plan for Danube River Basin that is in harmony with Strategic Action Plan establishing the common environmental objectives for Danube River basin, its delta and the Black Sea.</p>	yes
<p>Policy objectives:</p> <p>Current Concept of water management policy address point sources pollution and diffuse pollution. To minimise water pollution by point sources, national policy addresses the need for evaluation of strategies to reduce risk of water pollution by nitrogen from agriculture. Strategic objectives of protection of ground water propose measures for enlargement of water protection zones and areas of hygienic protection, that should be strengthen in existing legislation and economic instruments, particularly providing foregone income for implementation of agriculture practices improving environment in these areas. Objectives of point sources pollution include also development of proposals for mitigation of water pollution by organic substances including phosphorus and nitrogen, however, this does not distinguish between pollution from agriculture and other resources.</p> <p>Strategic objectives for reduction of diffuse pollution of ground- and surface waters aim to mitigate pollution mainly from agricultural practices and to implement measures that improve soil erosion. This includes identification of vulnerable areas (areas of water pollution caused by nitrogen from agriculture) in the framework of the implementation of the EU Nitrate Directive.</p>	Yes

<p>Environmental objectives of the Agriculture and Food Policy support biological and alternative decontamination of soil and investments into technologies to reduce point source pollution. National Environmental Action Plan address the improvement of water quality and reduction of water pollution from nutrients, including agriculture as a pollution source. National Action Plan for Danube River Basin address the reduction of water pollution from agricultural resources.</p>	
<p>Farm wastes – manure and slurry?</p>	<p>YES</p>
<p>Description of strategy: The Concept of Agricultural and Food Policy (AFP) for Slovak Republic (see above). Integrated Waste Management Policy is part of State Environmental Policy of the Slovak Republic. Waste Management policy address the integrated approach that is focused on the waste reduction, decrease of toxic substances in waste, recycling and the improvement of waste facilities including agricultural production. Policy objectives: One of the policy objectives of the AFP aims to modify agricultural practices in the way to protect environment, particularly soil, water, air and biodiversity. This objective is reflected in pillar V. that support agri-environmental programme (that specifically address the protection of soil and water) and investments into environmental measures, that includes biological and alternative decontamination of soil, investments into technologies to reduce point source pollution and introduction of the ecological treatment of waste from agricultural production. The policy objectives of the Integrated Waste Management Policy in relation to agriculture address the improvement of waste storage facilities, sanitation of illegal landfills and enhancement of compost of biological waste.</p>	
<p>Pesticides?</p>	<p>YES</p>
<p>Description of strategy: Agriculture and Food Strategy (see above). National Environmental Action Plan (see above). The Concept of Water Management Policy (see above) Policy objectives: Strategic objectives of the Concept of water management policy for reduction of diffuse pollution of ground- and surface waters aim to mitigate pollution mainly from agricultural practices. The pillar V. of the AFP focused on agricultural practices improving environment and support of measures for biological and alternative decontamination of soil. National Environmental Action Plan address the improvement of water quality and reduction of water pollution from hazardous and harmful substances, however, do not stress pollution from agriculture.</p>	
<p>Soil erosion?</p>	<p>YES</p>
<p>Description of strategy: Agriculture and Food Strategy (see above). The Concept for the Water Management Policy in Slovakia National Environmental Action Plan (see above). Policy objectives: The pillar V. of the AFP focused on agricultural practices improving environment includes support of measures against soil erosion. Strategic objectives of the water management policy aims to support measures that improve soil erosion. National Environmental Action Plan address the reduction of soil erosion by alternative agricultural practices and land consolidation.</p>	

10.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

10.2.1 Regulatory Instruments and Measures

Note: If legislation do not distinguish between mineral and organic fertilisers, it is used term “fertilisers” (any substance containing the nutrients).

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation	General Reg.?	Specific Reg.?	Pollution Issue	Farming Practices Required/ Restricted by Regulatory Instruments	Level of Implementation & Enforcement	Reasons for Poor Implementation and/or Enforcement
The Water Act 184/2002 Coll. , which establishes basic duties in water management and general protection of ground- and surface waters including aquatic ecosystems.	√ ¹⁴³		Pesticide, silage effluent, organic and mineral fertilisers and its liquid parts, Farm waste.	Limits (permission required) and regulations on waste water discharge, land drainage, using dirty water for irrigation in all areas. Limits (permission required) on airplane application of fertilisers and building of large-scale livestock production farms in all areas. Limits/conditions on waste handling from large-scale livestock production farms in all areas.	2	Administration lacks the financial resources to check compliance. Control is mostly based only farmers reports ¹⁴⁴ . The control authority – Slovak environmental inspection reacts only on warning from other institutions or individuals. Low awareness of farmers about the impact of waste on environment. Permission are relatively easy granted in all areas.

¹⁴³ The Water Act transposes all important directives of European legislation that include Directives 76/464/EEC (protection of water against hazardous substances), 80/68/EEC (protection of ground waters against hazardous substances), 91/676/EEC (protection of waters against nutrients from agricultural resources), 78/659/EEC (improvement of water quality in regard to fish species).

¹⁴⁴ Farmers are obliged to provide annual report on agricultural practices including agricultural inputs-mineral and organic fertilisers, pesticides-(active ingredients, quantities applied, date of application, crop growth stage, etc) crops, yield, etc.

				<p>The prohibition of sanitation buildings (slaughterhouse), large-scale livestock production farms, airplane application of fertilisers, irrigation of agricultural land over 50 ha in water areas of significant importance.¹⁴⁵ Limits on pasturing practices to avoid soil erosion and surface in water areas of significant importance.</p>	2	<p>Administration lacks the financial resources to check compliance, low awareness of farmers about the impact of waste on environment. The duties of farmers having pastures in water protection zones are not exactly defined. Moreover, the pasturing practices are not efficiently controlled due to lack of finances and capacities.</p>
				<p>Agricultural practices, particularly pasturing, shall consider good status of soil (erosion) and waters in all areas.</p> <p>State authority can order the implementation of special agricultural practices to achieve good status of water in all areas.</p>	3	<p>Farmers mostly do not respect the good status of environment and by inappropriate grazing practices cause soil erosion and water pollution. This is result of lack of awareness of farmers about the environmental consequences. In case of violence of law, farmers mostly get just warning instead of penalties because the most of farmers have financial difficulties.</p> <p>On the other hand, there is lack of finances for compensation of farmers for forgone income for applying environmental practices.</p>

¹⁴⁵ Areas protected due to valuable natural accumulation of water (defined according to the Water Act).

				Recommended implementation of Code of Good Agricultural Practices in all areas: Obligations: limits and prohibition of fertiliser use on timing, soil conditions, slope of terrain, and distance to water flow. Definition of storage conditions of organic fertilisers including silage, and procedures of application of fertilises and manure on agricultural land. Optional: application of crop rotation rules, evaluation of plans for fertiliser use, implementation of measures for water protection against pollution from irrigation water and surface discharge.		The Code of Good Agricultural Practices (GAP) was the first time included into legislation in new Water Act, which defined GAP as “generally acceptable level of water protection” ¹⁴⁶ . However, so far there is no administration structure, staff and financial resources to check compliance.
				Action Plans of agricultural practices for vulnerable areas ¹⁴⁷ : Limits or prohibition of fertilisers use on timing, climatic conditions, soil type, slope of terrain, and grazing carrying capacity. Conditions or prohibition of storage of organic fertilisers.	3	Action Plans are supposed to be prepared in the second half of 2003.
				Evaluation and implementation of Programme for reducing water pollution by harmful and particularly harmful substances ¹⁴⁸ .		Programmes are supposed to be prepared in the second half of 2003.

¹⁴⁶ The Code of GAP is supposed to be obliged for farmers working in vulnerable and less favourite areas and in farms applying agri-environmental schemes. Until now there is no legal basis implementation, mostly due to lack of finances.

¹⁴⁷ Vulnerable areas are agricultural territories which are prone to water pollution from agriculture (ground waters contain more than 50mg/l of nutrients, eutrophication of surface waters). Vulnerable areas for Slovakia and its Programmes for agricultural practices should be defined in 2003 and evaluated every fourth year.

¹⁴⁸ This Programme has to be evaluated by everybody who is handling with hazardous substances and discharge particularly harmful and harmful substances (Annex II: silage effluent, mineral and organic fertiliser and their liquids).

Decree on of protection zones for water resources and measures for water protection 398/2002 Coll.		√	Nutrients, pesticides. farm waste.	Limits on waste farm storage and use (liquid and hard), building of large-farms, use of pesticides, mineral and organic fertilisers, and irrigation in protection zones of water resources ¹⁴⁹ (set up according to environmental conditions on site).	2	Due to lack of finances, capacities and awareness of farmers, the agricultural practices in areas of impact zone (II., III.) on the water source can contribute to pollution.
			Nutrients, pesticides. farm waste.	Prohibition of waste storage facilities in the I. and II. Protection zone of water resources, and keeping distance from water resources in the III. zone of protection.	2	The protection of water resources in the first zone is relatively well ensured. Due to lack of finances, capacities of administration and lack of awareness of farmers, the agricultural practices in areas of impact zone on the water source can contribute to pollution.
			Nutrients, pesticides.	Prohibition fertilisers and pesticides in first protection zone of water resources, keeping distance from water spring and flows (set up according to environmental conditions on site, usually 50 m from drinking water springs, and 100 m from drinking water reservoirs, 12 m from lakes, streams, rivers).	2	Due to lack of finances, administration and staff, there is almost no control on site. Control authorities react only in case of warning from other institutions and individuals.

¹⁴⁹ The water resources (including drinking water) are protected by different zones ranging from degree I. (the closest one – any activity prohibited) to degree II. and III. (limited agricultural activities identified according to (site characteristic)).

Decree on qualitative objectives of surface waters and limit values for waste water and particular waters 491/2002 Coll.		√	Farm waste.	Define rules and limit values of water discharge quality for substances, which constitute a risk to the environment including agricultural waste.	2	Lack of finances, lack of staff to check compliance, old technologies.
The Waste Act 223/2001 Coll. , which establishes basic duties and responsibilities in waste prevention and waste management. Decree on Storage of Waste in farms.	√		Farm waste.	Farmer is obliged to develop and implement the Waste management Plan in case of overcoming of certain threshold of waste (number of animals), which defines the conditions of handling and storage of the farm waste (substances from pesticide processing, silage effluent, organic and mineral fertilisers and its liquid parts) including agrochemicals (in harmony with district and regional waste management plans).	3	Real implementation of Waste Management Plans is hard to evaluate because there is no control on farm level. Due to lack of staff and finances, farms are controlled only after warning from other institutions or individuals.

Act on Application of Sludge and Sediments in Soil (zákona o aplikácii čistiarenského kalu a dnových sedimentov do pôdy) – adopted in February 2003, in force from July?		√	Nutrients	Prohibition of sludge and sediments on wet and frozen soil, arable land = fruits and vegetables, over certain threshold of terrain slope and pH, time limit on grasslands for grazing,	3	Low is in force since June.
<p>The Act on Agricultural Land Conservation 307/1992 Coll (am. 83/2000 Coll.), that set duties to protect natural functions of agricultural land.</p> <p>Resolution 531/1994-540 on limits of soil pollution by harmful substances</p> <p>Resolution 152/1996 regulating the rate of compensation for restricted agricultural practices.</p>		√	Soil erosion, contaminations (nutrients, farm waste), protection of other elements of environment.	<p>Permission on change of land type, ensure general protection of soil and its functions and the prevention against invasive species.</p> <p>Act allowed to establish “special management” for agricultural land that is prone to risk:</p> <ul style="list-style-type: none"> • measures for improvement of water regime and water quality • limits of fertilisers and pesticides • waste treatment measures • revitalisation of agricultural land (conversion of arable land to grasslands) • prohibition of agrotechnologies 	3	This act is very rarely used in practice due to lack of interest in environmental issues, lack of staff, missing detailed description of measures and lack of finances for its implementation (compensation and forgone income to land users and land owners).

<p>The Act on Fertilisers 136/2000 Coll., that establish conditions for use, storage, introduction and registration of fertilisers.</p>		√	Nutrients	<p>Limits (rules) and conditions on application and storage of fertilisers.</p> <p>Farmers is allowed to use only registered fertilisers. Fertilisers can not be applied by the way that damage the environment.</p> <p>Prohibition of all fertilisers and manure application in wet (drench), frozen or snow-covered land, and in case of damage of the environment in all areas.</p>	2-3	<p>It is well known that the use of fertilisers has decreased in post communist countries in last period. However, farmers are not able to keep conditions for storage and handling of fertilisers due to old technologies. There is almost no control of the law implementation due to lack of finances, staff and general attitude “the fertiliser input is very low”. The quality of soil is monitored through farmer’s report¹⁵⁰ and national agrochemical monitoring of soil¹⁵¹.</p>
<p>Decree on type, storage and examination of fertilisers 26/2001 Coll</p>		√	Fertilisers	<p>Lay down the type of fertilisers, storage conditions for solid and liquid fertilisers and its application on agricultural land.</p>	2	<p>The quality of soil is examined through the Monitoring System (every 6 years) and by controls, which are very rare due to lacks of finances, staff and administration. Due to old technologies and lack of finances, farmers are not able to keep all conditions for storage and handling of fertilisers.</p>

¹⁵⁰ Farmer is obliged to report annual use of the fertilisers and pesticides (active ingredients, quantities applied, date of application, crop growth stage, etc) and provide soil examples for control of agrochemical indicators every 6 years.

¹⁵¹ Agrochemical soil examination includes the evaluation of the basic soil parameters every 6 years on national level and development the standards for application of fertilisers and manure based on research findings.

The Act on Plant Treatment 471/2001 Coll. that establish duties in using and handling the plant protection substances.		√	Pesticides	Rules for application and control of the pesticides use. Farmer is obliged to respect the time and scale of application of pesticide, including the limits in protection zones of water resources.	2	Act set regular controls on farm level, such as control of machineries used of application. The control are very random due to lack of finances and staff. The quality of soil is monitored through farmer's report ¹⁵² and national agrochemical monitoring of soil ¹⁵³ .
The Act on Organic Farming 224/1998 Coll. , that lays down rights and obligations for the implementation of organic farming and processing of bioproducts.		√	Pesticides, nutrients,	Limits or prohibition on pesticides and fertilisers use, crop rotation, in areas of organic farming.	2	Subsidies for organic farming has decreased recently. On the other hand, some farmers had to stop organic farming because there were not able to follow technical conditions for its implementation.
The Act on Nature and Landscape Protection 543/2002 Coll. That set duties for nature protection, rational use of nature resources and maintenance of typical landscape.	√		Pesticides, nutrients, farm waste.	Limits on wetland management, change of land type, and air application of pesticides and fertilisers in all areas. Limits on grazing capacity, outdoor keeping of animals and using water places for animals (napajadiel), use of mineral and organic fertilisers, pesticides and silage effluent, storage facilities and plough grasslands areas in protected areas ¹⁵⁴ .	3	The Act is considered to be very overambitions and its implementation is very weak due to lack of finances, demanding for administration, lack of compensation to farmers, lack of staff and low budget for state institutions (all management, control and implementing).

¹⁵² Farmer is obliged to report annual use of the fertilisers and pesticides (active ingredients, quantities applied, date of application, crop growth stage, etc) and provide soil examples for control of agrochemical indicators every 6 years.

¹⁵³ Agrochemical soil examination includes the evaluation of the basic soil parameters every 6 years on national level and development the standards for application of fertilisers and manure based on research findings.

¹⁵⁴ The Act on Nature and Landscape Protection identifies five degree of protection: I. Degree- all territory of Slovak Republic, II. Degree –Protected Landscape areas (limited agricultural practices-approval required), III. degree – National Parks (limited agricultural practices-permission required), IV. degree (prohibition of use of chemical fertilisers and pesticides, plough grasslands and establishment of pasturing facilities, limits on grazing capacity and organic fertilisers)and V. (no agricultural practices allowed).

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments	
Ministry of Environment of the Slovak Republic - management and control state authority	Development and implementation of The Water Act 184/2002 Coll. Co-ordination of Partial Monitoring System (PMS), the monitoring of ground- and surface waters, development of Programmes for reduction of water pollution, designation of vulnerable zones and its monitoring. Development and implementation of the Waste Act 223/2001 Coll., which establishes basic duties for farms waste treatment. Management and control of implementation of the Act on Nature and Landscape Protection 543/2002 Coll.	3	Lack of finances, lack of adequately trained staff, insufficient of co-operation with the Ministry of Agriculture. Lack of administration to check compliance. Lack of finances to compensate farmers. Comparing to other problems, pollution from agriculture is not considered as urgent one.
Ministry of Agriculture of the Slovak Republic – management and control state authority	Implementation of following acts: Act on Organic Farming 224/1998 Coll., the Act on Fertilisers 136/2000 Coll., Act on Agricultural Land Conservation 307/1992 Coll., The Act on Plant Treatment 471/2001 Coll. Co-operation on implementation of The Water Act 184/2002 Coll including the evaluation of Code of Good Agricultural Practices-protection of water resources, evaluation and control of Programmes for agricultural practices in vulnerable areas.	3	Ministry of Agriculture is lacking behind with evaluation and implementation of special programmes focused on environmental practices in agriculture due to lack of finances, particularly for forgone income, lack of adequately trained staff, lack of co-operation with the Ministry of Environment and not-efficient organisation and management.
Ministry of Health of the Slovak Republic management and control state authority	The implementation of The Act 471/2001 Coll on Plant Treatment. Control of water quality.	2	Lack of finances, lack of staff.

Central Controlling and Testing Institute in Agriculture.	The control of implementation of the Act on Fertilisers 136/2000 Coll., the Act on Plant Treatment 471/2001 Coll., and The Act on Organic Farming 224/1998 Coll. – monitoring of soil quality parameters and set up use/prohibition for application fertilisers and pesticides in all areas.	2	Monitoring soil is based on six years cycle examination of soil (provided by farmers) which provides relatively good data on soil quality. Due to lack of finances and stuff, there is very low of random and regular control on farm level.
Regional Administration Office – management and control state authority	Implementation of following acts: The Water Act 184/2002 Coll., the Act on Fertilisers 136/2000 Coll., the Act on Plant Treatment 471/2001 Coll. The Waste Act 223/2001 Coll. - issuing the waste management plan for region, approval of waste management plans for farms (cross a district borders). The Act on Agricultural Land Conservation 307/1992 Coll. (am. 83/2000) The Act on Nature and Landscape Protection 543/2002 Coll.	3	Lack of finances, lack of adequately trained stuff, pollution from agriculture is not actually considered a urgent problem.
District Administration Office – executive state authority	Limits on wetland management, change of land type, and air application of pesticides and fertilisers in all areas. Limits on grazing capacity, outdoor keeping of animals and using “napajadiel”, use of mineral and organic fertilisers, pesticides and silage effluent, storage facilities and plough grasslands areas in protected areas, approval of waste management plans for farms (inside of district), building of waste facilities and large scale farms, air application of agrochemicals, change of land type, grazing capacity, order the measures for improvement of water quality, declaration of water protection areas and	2	Lack of finances, lack of administration and adequately trained stuff, pollution from agriculture is not actually considered a urgent problem.

	control of their management (see above) . Issuing the waste management plan for district.		
Slovak Inspection – supervisory and control body	Control of implementation of all Acts mentioned before – water protection against pollution, waste water discharge, implement tasks coming from international system of river protection and cross-border water management including the Convention on protection and sustainable use of Danube river. Inspection imposes penalties in case of violation of laws and take decision in particular cases.	3	Due to lack of implementation capacities, financial resources, lack of well-trained staff, there is very poor control of agricultural practices and waste management on site. The Slovak Inspection monitor water pollution based on information from Partial Monitoring system (see below) and carry out the control on site only in case of warning from other institutions or individuals.
Slovak Hydrometeorology Institute, branch Hydrological service (responsible to the Ministry of Environment SR)	Co-ordination of subsystems of Partial Monitoring System - water ¹⁵⁵ that	1	n.a.
Water Management Bodies (responsible river basin management in Danube river basin)	Monitoring objectives include the control of ground- and surface water pollution from agricultural resources. Delivering data to monitoring system.	1	n.a.
Water Research Institute (under the Ministry of Agriculture)	Administration of the national database of indicators of water quality and quantity, research on water pollution factors.	1	n.a.

¹⁵⁵ Sampling include the monitoring for nitrated in irrigation waters. Partial Monitoring System- water - basic indicators of quality and quantity of surface and ground waters including nutrients and allowed partially identify the water pollution from pesticides. Systematic monitoring of the water quality include 1532 monitoring points and covers almost 4 000km of important rivers (flows) which is approximately 9% of the total lengths of river system. Monitoring does not upper parts of rivers and small streams.

<p>Soil Science and Conservation Research Institute - Advisory institution for the Ministry of Environment and the Ministry of Agriculture on legislation relating to contamination of soil and water from agricultural practices and soil erosion.</p>	<p>Coordination of Partial Monitoring System – Soil and administration of Geographical Information System on Soil. Advisory body for the ministry of Environment and the Ministry of Agriculture in the field of water and soil protection legislation. Consultancy and training for group of interest.</p>	1	n.a.
<p>Administration offices of State Nature Conservancy – advisory body</p>	<p>Implementation of the Act on Nature and Landscape Protection 543/2002 Coll. - providing information, consultancy and partially advisory on agricultural practices in protected areas.</p>	3	Lack of financial resources; lack of staff; lack of well trained staff, poor defined responsibilities.

10.2.2 Economic Instruments and Measures

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	?	Pollution Issue	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation	Reasons for Poor Implementation
The Water Act 184/2002 Coll. , which set penalties in case of violation of regulations on general protection of ground- and surface waters including aquatic ecosystems	√		Pesticide nutrients, farm waste	Penalties are set in case of violance of Water Act (see chapter above), particularly: Limits on waste water discharge into ground and surface waters in all areas. Limits on airplane application of fertilisers and building of large capacity farms in all areas. The prohibition of sanitation buildings (slaughterhouse), large capacity farms, airplane application of fertilisers in water protection zones ¹⁵⁶ . Limits or prohibitions of agricultural practices in protection zones of water resources ¹⁵⁷ .	3	Lack of control on site due to lack of finances and staff. The control authority – Slovak environmental inspection reacts only on warning from other institutions or individuals.
The Waste Act 223/2001 Coll. , which set penalties for violation of regulations of waste treatment	√		Farm waste	Penalties for not keeping rules of the manipulation of farm waste according to Waste Management Plan (substances from pesticide processing, silage effluent, organic and mineral fertilisers and its liquid parts), which identify the waste products and how they are managed.	3	Lack of finances and staff to control implementation on farm level and thus fully implement a penalty system.

¹⁵⁶ Areas of valuable natural accumulation of water according to Water Act.

¹⁵⁷ The water resources (including drinking water) are protected by different zones ranging from degree I. (the closest one – any activity prohibited) to degree III. (limited activities allowed).

<p>The Act on Agricultural Land Conservation 307/1992 Coll (am. 83/2000 Coll.), which set penalties for violation of the rules.</p>	√		<p>Soil erosion, (nutrients, waste)</p>	<p>Penalties on change the land type, do not implement agricultural practices which ensure general protection of soil and its functions and the prevention against invasive species.</p> <p>Act allowed to establish “special management” for agricultural land that is prone to risk:</p> <ul style="list-style-type: none"> • measures for improvement of water regime and water quality • limits of fertilisers and pesticides • waste treatment measures • revitalisation of agricultural land (conversion of arable land to grasslands) • prohibition of agrotechnologies. 	3	<p>Lack of finances, administration and staff to fully implement a penalty system.</p>
<p>State Fund for protection and revitalisation of agricultural land. The measures are provided through regular subsidy system which set priorities every year.</p>		√	<p>Soil erosion, farm waste.</p>	<p>Improvement of waste management, storage facilities for manure, silage, slurry, and investment into agrotechnologies, measures against soil erosion, revitalization of grasslands.</p>	2	<p>However, measures for soil protection are less implemented while the majority of farmers use subsidies for agricultural production. The second reason is lack of finances, particularly for improvement of waste storage.</p>

Decree on Rural and Agricultural Development Plans 316/2001 (am. 515/2002 and 717/2002) - Agri-environmental programme (pilot areas under the SAPARD)		√	Nutrients, pesticides, soil erosion	Reduction of fertilisers and pesticides on arable land and on grasslands, maintenance of grasslands, conversion of arable land to grasslands, special measures for wetlands protection, measures against soil erosion (non forest wood vegetation).	3	The programme have not started yet due administration problems and lack finances (it is supposed to start in 2004)
The implementation of The Act on Fertilisers 136/2000 Coll., that set penalties for inappropriate use of fertilisers.	√		Nutrients	Penalties for use of unregistered fertilisers, application of fertilisers by the way that damage the environment. Application of all fertilisers and manure application in wet (drench), frozen or snow-covered land.	3	Due to lack of finances and staff, there is very low of random on farm level. The control on farm level is mostly done on warning of other institutions or individuals.
Act on Nature and Landscape Protection 543/2002 Coll. , that set penalties for violence of the law and provide compensation of limited agricultural practices.	√	√	Nutrients, pesticides, sillage effluent.	Penalties for not allowed agricultural practices in all areas or in protected areas (application of fertilizers and pesticides, ploughing the grasslands, inappropriate use of wetlands, etc). Compensations for restricted agricultural practices (outside of terms of Act on Soil Conservation) or financial contribution to achieve good status of land that requires implementation of measures outside of obvious land management.	3	Mostly, farmers have a financial problem, that implementation authority can only exceptionally impose penalties. On the other hand, the state budget allocation do not provide finances to cover compensations for restricted agricultural practices. Due to lack of finances and stuff, there is only very random control on site.

The Act on Organic Farming 224/1998 Coll. , that provide special subsidies for implementation of organic farming according to FAO.	√	Pesticides, nutrients.	Rewards for limits or prohibition on pesticides and fertilisers use and crop rotation in areas of organic farming.	2	The financial resources has decreased recently and number of farmers are not able to joint programme due to old technologies and lack of knowledge on organic farming.
Programme for support of implementation of environmental measures, which is focused mainly water pollution issue.	√	Water protection and waste management.	The objective of improvement of water pollution is generally defined, however, it provides option for support of agricultural practices to improve water quality.	3	The project supported from this program until today are much more focused on canalisation and communal waste and do not include the best agricultural practices..

Institutional Arrangements

Note : The responsibilities for other economic instruments are defined in previous section.

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments	Reasons for Any Lack of Implementation Capacity
Ministry of Agriculture of SR	State Fund for protection and revitalisation of agricultural land.	2	Lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience, poor co-operation with the Ministry of Environment; poor co-operation with NGO sector
Ministry of Agriculture of SR and SAPARD Agency	Agri-environmental programme	3	Lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; not efficient organisation and management.
Ministry of Environment of SR	Programme for support of implementation of environmental measures	3	Lack of financial resources; lack of staff; poor organisation and management; insufficient co-operation with NGO sector

10.2.3 Advisory/Information Instruments and Measures

Note: Agricultural land in Slovakia is managed mostly by large corporate farms that tend to employ their own specialists. Therefore, there is not real demand for advisory services. There are some private advisers who provide consultancy mainly on intensive agricultural practices. On the other hand, the pollution from agriculture is not considered as an urgent problem.

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue	Farming Practices Encouraged/ Discouraged by the Advisory/Informative Instrument	Level of Implementation and/or Uptake	and/or Uptake
Technical assistance by independent advisory service	yes	Pesticides, nutrients	Organic farming – general rules.	2	Advisory possibilities on organic farming for farmers vary among from regions, which actually exclude some farmers. Poor cooperation with Ministry of Environment.
Technical assistance by State advisory service	yes	Pesticides, nutrients	Environmental Friendly Agriculture, protection of water sources (seminars, excursions - mainly to Western Europe). Best Agricultural Practices to prevent water pollution (seminars). Advisory and consulting on contamination of soil and water due to agricultural practices and soil erosion (seminars).	2	There is no advisory or information instrument focused on protecting water from agriculture. Advisory institutions provide only general information on environmentally friendly agriculture that sometimes touch water pollution issue. Seminars focused on Best Agricultural Practices to prevent water pollution are organized only for experts or group of interest.
Technical assistance by providers of farm inputs	no				

Education and awareness-raising campaigns	no				
Demonstration farms	no				
Learning by sharing of ideas among the farmers	no				
Publications and other information materials	yes		Main relevant publications: Ecological Farming Code of Good Agricultural Practices – water, fertilizers, soil (see below). Water in threat from agricultural production.	2	Due to lack of finances, as well as poor management, the code of Good Farming Practices and other relevant publications are inefficiently advertised and produced only in limited copies, mostly for group of interest.
Training	yes	General environmental issues	Environmental Friendly Agriculture, water sources protection/distance studies, seminars.	3	Training provides information on environmental aspect of agriculture in general way. Programmes are more focused on “expert” public than on farmers.
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/Information Instruments	Reasons for Any Lack of Implementation Capacity
Agroinsitute (under the Ministry of Agriculture)	Advisory, consultancy and training institute	2	Lack of adequately trained staff; lack of policy-making experience; poor organisation and management.
Agency for Rural Development	Advisory, consultancy and training organisation	3	Less interest into environmental issues related to agriculture.

Soil Science and Conservation Research Institute - advisory body for the Ministry of Environment and the Ministry of Agriculture on legislation.	Advisory and consulting on contamination of soil and water due to agricultural practices and soil erosion.	2	The training programmes on water protection on agricultural practices are focused only on experts and group of interest.
Private companies (organic farming)	Consultancy	2	Companies are mostly active in selected regions that excludes farmers in distance areas.
Regional Agricultural Agencies	Providing information and partially advisory on agricultural practices.	3	Lack of financial resources; lack of staff; lack of adequately trained staff.
Slovak Environmental Agency	Providing information and partially advisory on agricultural practices.	3	Lack of financial resources; lack of staff; lack of adequately trained staff, poor management and defined responsibilities.
Administration offices of State Nature Conservancy	Providing information, consultancy and partially advisory on agricultural practices.	3	Lack of financial resources; lack of staff; lack of well-trained staff, poor defined responsibilities.

10.2.4 Project-based Instruments and Measures

Note: It is very hard to evaluate the budget because the agricultural issue was only part of project or finances was not published (*ono to niekde musi byt, ale zatiaľ som to nevypratrala. Este to skusim.*)

Project	Project Budget	Pollution Issue ¹⁵⁸	Farming Practices Encouraged/Discouraged by the Project Activities	Comments/Observations ¹⁵⁹
Regional Environmental Management Plan for Hron River Basin (SAZP)	Small	Farm waste, erosion	Policy recommendations for improving the soil erosion and farm waste management (very general).	Project was focused to evaluate general study for river basin management plan. Pollution from agriculture was not considered as a serious enough comparing to other pollution resources.

¹⁵⁸ Nutrients, farm wastes, pesticides or soil erosion

¹⁵⁹ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

Regional Environmental Accession Project (Phare) – Water protection against pollution by nutrients from agricultural production.	Small	Nutrients, pesticides, farm waste.	Development of Code of Good Agricultural Practices – Water focused on prevention of water pollution from agriculture. Assistance on implementation of Directive 91/676EEC on water protection against pollution from agriculture.	In the framework of the project, there were organized seminars and published information including Code of Good Agricultural Practices that address concrete aspects of the water pollution from agricultural practices.
Restoration and Management of the Species Rich Meadows in Morava River Floodplain	25 000 Euro	Nutrients, pesticides.	Transformation of arable land into grasslands, management of grasslands in river basin.	Project demonstrated the appropriate management practices in floodplain area that contribute to reduction of water pollution from agriculture. Project included seminars and publications on good farming practices on wet meadows.
Remediation of Polluted Soil and Groundwater	Small	Nutrients, pesticides, farm waste	Evaluation of methodology for identification of potential water pollution resources, risk assessment analyses and prioritizing and identification of adequate measures to minimize water pollution.	n.a.
Research on quality of drinking water and environmental aspects of flows.	Small	Erosion, nutrients, pesticides.	Research project addresses the contribution of agriculture to water pollution due to inappropriate use of agrochemicals and soil erosion.	n.a.
Consultancy in harmonisation of sectoral policies and capacity building in the field of water management and water protection.	Small	Erosion, nutrients, pesticides, farm waste.	Aspects of implementation of Water Framework Directive in Slovakia and integrated management of river basins with focus on water quality.	n.a.

Institutional Arrangements

Project	Institution/Organisation	Responsibility
Restoration and Management of the Species Rich Meadows in Morava River Floodplain	DAPHNE-Institute of Applied Ecology	Project co-ordination (subcontractor)
Regional Environmental Accession Project (Phare) – Water protection against pollution by nutrients from agricultural production.	Soil Science and Conservation Research Institute Project Management Group Participation of the Ministry of Environment	Project co-ordination
Remediation of Polluted Soil and Groundwater	Danish Environmental Protection Agency – Division for Eastern and Central Europe (Ministry of Environment)	Project co-ordination
Consultancy in harmonisation of sectoral policies and capacity building in the field of water management and water protection.	The Ministry of Environment of the Slovak Republic and the Ministry of Traffic, Public Affairs and Environment of the Netherlands.	Project co-ordination
Research on quality of drinking water and environmental aspects of flows.	Water Research Institute	Project co-ordination

10.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet?

Are there any special programs or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

yes	
yes	
Crop nutrients	yes
Animal wastes	yes
Pesticides	yes
Soil Erosion	yes
Other (please specify)	Drainage and irrigation, cultivation of land, grazing capacity.
Published in brochure.	
Strategy for implementation of Nitrate Directive 91/676/EEC -protection of waters against nutrients from agricultural resources	

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

Code of Good Agricultural Practices for the protection of Water Resources

Evaluation of the Code of Good Agricultural Practices is part of the Strategy for Implementation of Nitrate Directive 91/676/EEC -protection of waters against nutrients from agricultural resources. So far, the Code does not have legislative obligation. Since 2004, it is supposed to be obligatory for area of agri-environmental schemes, less favourite areas and vulnerable zones. A draft report titled Code of Good Agricultural Practice for the Protection of Water Resources was already produced. This comprehensive document deals with pollution from nitrates and all other types of pollution arising from agricultural activities, including the following areas:

- Rules for storage of solid manure, slurry, silage effluent, dirty waters (evaluation of storage capacity according to animal production, etc.).
- Rules for application of organic and mineral fertilisers to soil (time, maximum dose, measures for application, inappropriate weather or soil conditions for applying fertilisers prohibition in the first protection zone of water resources, etc.)
- The construction of new facilities (prohibition in first and second protection zone of water resources, buffer strips to observe near water courses and other water bodies).
- Appropriate irrigation practices.
- Animal production - technical requirement for in door keeping facilities, limits on grazing capacity (number of animals per hectare), and conditions for pasturing.
- Appropriate soil cultivation practices.

10.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Practical On-farm Measure	Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg		Adv	Proj	
Limits (permission required) and regulations on waste water discharge.	Farm waste.	Moderate- improvement of waste water management that reduce water pollution	√	√			2
Limits on land drainage, using dirty water for irrigation in all areas, limits of irrigation of agricultural land in water areas of significant importance.	Nutrients, farm waste.	Moderate-improvement of irrigation water quality, limitation of drainage areas that conserve the environmental function of soil including purification.	√	√			3
Limits (permission required) on airplane application of fertilisers in all areas.	Fertilisers.	Moderate - avoid of application of fertiliser close to water bodies - reduction of nutrients in water from airplane application.	√	√			2
Limits/conditions on waste handling from large-scale livestock production farms in all areas. Waste management Plan, which defines the conditions of handling and storage of the farm waste including agrochemicals (in harmony with district and regional waste management plans).	Farm waste.	Moderate - improvement of storage facilities and waste management - reduction of point sources pollution from agriculture.	√	√			2

The prohibition of sanitation buildings (slaughterhouse), large-scale livestock production farms, airplane application of fertilisers in water areas of significant importance.	Farm waste, pesticides, nutrients.	High-reduction of nutrients and pesticides close to water bodies.	√	√			2
Limits on pasturing practices to avoid soil erosion and surface water pollution in water protection areas ¹⁶⁰ .	Soil erosion, nutrients.	Moderate – improvement of soil erosion and reduction of nutrients.	√	√			3
Limits on waste farm storage and use (liquid and hard), building of large-farms, use of pesticides, mineral and organic fertilisers, and irrigation in protection zones of water resources ¹⁶¹ - II. and III. (set up according to environmental conditions on site).		Moderate – improvement agricultural practices and limits on agricultural inputs.	√	√			3
Prohibition of waste storage facilities in the I. and II. protection zone of water resources, and keeping distance from water resources in the III. Degree	Farm waste, nutrients	High – reduction of nutrients, farm waste that reduce water pollution.	√	√			2

¹⁶⁰ Areas protected due to valuable natural accumulation of water (defined according to the Water Act).

¹⁶¹ The water resources (including drinking water) are protected by different zones ranging from degree I. (the closest one – any activity prohibited) to degree II. and III. (limited agricultural activities identified according to (site characteristic)).

of protection.							
Prohibition fertilisers and pesticides in first protection zone of water resources, buffer strips set according to environmental condition on site (usually 50 m from ground drinking water springs, 12 m from lakes, streams, rivers, on slope more then 12°).		High – reduction of nutrients and pesticides close to water resources	√	√			2
State authority can order the implementation of special agricultural practices to achieve good status of water in all areas.	Farm waste, pesticides, nutrients	Moderate – improvement of water quality due to environmental friendly agricultural practices.	√	√			3
Action Plan of agricultural practices for vulnerable areas ¹⁶² : Limits or prohibition of fertilisers use on timing, climatic conditions, soil type, slope of terrain, and grazing carrying capacity. Conditions or prohibition of storage of organic fertilisers.	Nutrients	High-improvement of agricultural practices that lead to nutrient reduction.	√	√			2 (not yet implemented)
Permission on change of land type, ensure general protection of soil and its functions and the prevention	Soil erosion, nutrients, pesticides.	Low-poor definition of land management rules.	√	√			3

¹⁶² Vulnerable areas are agricultural territories which are prone to water pollution from agriculture (ground waters contain more then 50mg/l of nutrients, eutrophication of surface waters). Vulnerable areas for Slovakia and its Programmes for agricultural practices should be defined in 2003 and evaluated every fourth year.

against invasive species.							
Improvement of waste management, storage facilities for manure, silage, slurry, and investment into agrotechnologies..	Farm waste	High- reduction of point sources pollution from agriculture.		√			2
Measures against soil erosion.	Soil erosion.	High – implementation of measures to reduce soil erosion.		√			2
Revitalization of grasslands.	Nutrients	Moderate – nutrient uptake		√			2
<p>“Special management” for agricultural land that is prone to risk:</p> <ul style="list-style-type: none"> • measures for improvement of water regime and water quality • limits of fertilisers and pesticides • waste treatment measures • revitalisation of agricultural land (conversion of arable land to grasslands) • prohibition of agrotechnologies 	Pesticides, nutrients, farm waste.	Moderate – improvement of water quality due to environmental friendly agricultural practices.	√	√			3
Fertilisers cannot be applied by the way that damages the environment. Definition of the allowed types of fertilisers, conditions for storage conditions for solid and liquid fertilisers and its	nutrients	High – proper using of fertilisers to avoid water pollution.	√	√			2

application on agricultural land.							
Prohibition of all fertilisers and manure application in wet (drench), frozen or snow-covered land, and in case of damage of the environment in all areas.	nutrients	High - reduction of nutrient in water	√	√			
Farmer is obliged to respect the time and scale of application of pesticide, including the limits in protection zones of water resources.	Pesticides	Moderate – reduction of pesticides in water	√	√			2
Limits or prohibition on pesticides and fertilisers use, crop rotation, in areas of organic farming.	Pesticides, fertilisers	Low - reduction of water pollution on organic farming areas (about 2% of agricultural land)		√			3
Limits on grazing capacity, outdoor keeping of animals and using water resources by animals (napajadlo), use of mineral and organic fertilisers, pesticides and silage effluent, storage facilities and plough grasslands areas in protected areas ¹⁶³ .	Pesticides, nutrients.	Moderate – reduction of pesticides and fertilisers inputs.	√	√			3

¹⁶³ The Act on Nature and Landscape Protection identifies five degree of protection: I. Degree- all territory of Slovak Republic, II. Degree –Protected Landscape areas (limited agricultural practices), III. degree – National Parks (limited agricultural practices), IV. degree (prohibition of use of chemical fertilisers and pesticides, plough grasslands and establishment of kosiar, limits on grazing capacity and organic fertilisers)and V. (no agricultural practices allowed).

Reduction of fertilisers and pesticides on arable land and on grasslands,	Pesticides, nutrients	High - reduction of agricultural inputs, maintenance of grasslands and wetlands and thus improvement of nutrient uptake.		√			3 (not implemented yet)
Measures against soil erosion (non forest wood vegetation).	Soil erosion	Moderate		√			3 (not implemented yet)
Maintenance of grasslands, conversion of arable land to grasslands, special measures for wetlands protection	Nutrients	High – nutrients uptake and purification of water		√			3 (not implemented yet)
Conversion of arable to grasslands and management of wet meadows in inundation areas.	Nutrients, pesticides.	Moderate-improvement of nutrient uptake from river basin.			√		2

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

Regulatory instruments in Slovakia address main pollution problems from agriculture (**nutrients, farm wastes, pesticides and soil erosion**) and provide, if properly implemented, the sufficient basis for improvement of water pollution. However, legislation, in many cases too ambitious, is not supported by economic instrument and sufficient administration and personal capacities for its implementation. For example, compensation for restricted agricultural practices due to water quality are not reflected in state budget allocation.

Different acts provide various programmes and measures for reduction of water pollution, which are often partially overlapping. Part of the reason is that Slovakia has still not finished the approximation of legislation of the European Union and many acts are in process of preparation, however there are some incoherences in policies.

The existing economic instruments focused on water quality improvement provide support mainly to improvement of communal waste and good agricultural practices are overlooked. So far, the Code of Good Agricultural Practices has very weak legislative application and no economic support and information campaigns. Probably, as a result of significant reduction of agrochemical use during last period, the implementation of the Nitrate Directive is enforced by very low additional investments. These facts indicate that not all aspects of water pollution from agriculture have been taken into account during implementation strategy.

This „general attitude“ is also reflected in existing economic instruments that do not consider the future development of agriculture in Slovakia that might result in more intensive one.

Even the monitoring of water is well developed in Slovakia, the policy does not address control system that ensures sufficiently the check of compliance on site. Control authorities carry out control only in case of warning from other institutions or individuals – lack of enforcement on administration and financial level.

Policy does not address the increasing awareness on water pollution issue and do support training programmes and information campaign focused on farmers. This leads to violation of law, and thus water pollution, due to lack of information of farmers.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

Relatively new element in water management concept is emphasize on integration of environmental policy. However, to achieve one of the main objectives of water management policy defined as a “protection of environment” will require much more efficient interdisciplinary approach that is still lacking behind even strategy stress the co-operation of water management, agriculture and forestry, mainly in river basin management.

Policy on soil protection is vague in defining the agricultural practices to avoid water pollution and there are often missing executive decrees.

Incoherence between economic and regulatory instruments.

Rural Development funding in Slovakia did not use sufficiently opportunity to support of good agricultural practices in river basin and restoration of wetlands to improve water quality and security in rural areas. Up to date, the SAPARD programme has failed to incorporate awareness raising and capacity building to implement Water Framework Directive.

Existing policy does not address sufficiently public awareness activities and training and advisory programmes.

The institutions are not completely effectively organised to implement policies and practice for agricultural pollution control.

The implementation authorities miss appropriate power and authority in implementation and control of environmental objectives.

Lack of co-operation between the Ministry of Agriculture and Ministry of Environment.

Responsible authorities do not effectively enforce the existing regulations due to lack of finances and staff.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

The Water Framework Directive 2000/60/EEC, which is a bold and forward-looking instrument that, if properly implemented, will have far-reaching consequences on agricultural practices in river basins, should be implemented in short time and not only on national but on communities and region level. The overall environmental objective is the achievement of a 'good status' for all of Europe's surface- and ground waters, that include the prevent pollution from agricultural resources in Danube river basin. This also means reinforcing activities to strengthen administrative capacity on regional and local level, as well establishing of decision-making structure that enable stakeholders to participate.

Decline in production has brought about high risk of abandonment in areas of often important environmental functions, such as floodplains and grasslands, where the proper nutrient uptake and water purification functions depends heavily on the continued presence of production of agriculture. This aspect is not sufficiently address in existing policy.

It is crucial that the Slovak policy offer the training programmes, demonstration farms, advisory services and campaigns on best agricultural practices to avoid water pollution.

10.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Internet sites.

Electronic Collection of Laws of Slovak Republic

www.zbierka.sk

Conception of Agricultural and Food Policy for Slovak Republic

<http://www.mpsr.sk/slovak/dok/koncep/obsah.htm>

Basic legislative instruments related to quality and quantity of water and its rational use, and state administration.

<http://www.lifeenv.gov.sk/minis/voda/pp/pravne.htm>

Ministry of Environment of the Slovak Republic

<http://www.lifeenv.gov.sk/>

Slovak Environmental Agency

<http://www.sazp.sk/>

Ministry of Agriculture of the Slovak Republic

<http://www.mpsr.sk/>

Slovak Hydrometeorology Institute

http://www.shmu.sk/twinning/NPAA-2000_environment.rtf

Slovak Agriculture Library

<http://www.slpk.sk/>

Water Research Institute

<http://www.vuvh.sk/>

Information server of non-governmental organisations

www.changenet.sk

Indicators of Status of Environment

http://www.iszp.sk/nastroje/katal_idikatorov/zoznam.html

Legislation on Environment Protection in Slovakia

<http://www.sazp.sk/slovak/struktura/ceev/EIA/legislativa/>

Projects

http://www.shmu.sk/twinning/NPAA-2000_environment.rtf

Legislation on Water Protection

<http://www.lifeenv.gov.sk/minis/voda/pp/pravne.htm>

Centre for Chemical Substances and Products

<http://www.cchlp.sk/pages/leg.html>

Publications:

Water in threat from Agricultural Production - Code of Good Agricultural Practice for the Protection of Water Resources (2001)

Green Report of the Ministry of Agriculture

Report on Status of the Environment (Ministry of Environment)

Reports on Partial Monitoring System in Slovakia including relevant databases (Ministry of Environment)

Persons interviewed:

Name/Function	Institution	Tel. No./E-mail
Dr. Jan Seffer Director	DAPHNE – Institute for Applied Ecology	+421 7 5335300 daphne@changenet.sk
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Dr Kamil Vrana Director	Hydeko KV	+421 2 6224 6745 hydeko@hydeko.sk
Dr Radoslav Bujnovský Head of Soil Nutrients Dept	Soil Science and Conservation Research Institute	+421 2 4342 0866 bujnovsky@vupu.sk

Annex 11

Slovenia

11 Slovenia

POLICY REVIEW QUESTIONNAIRE

Country under Review	SLOVENIA
Name of Expert(s)	Anamarija Slabe

11.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	NO
Description of strategy:	
Policy objectives:	
Farm wastes – manure and slurry?	NO
Description of strategy:	
Policy objectives:	
Pesticides?	NO
Description of strategy:	
Policy objectives:	
Soil erosion?	NO
Description of strategy:	
Policy objectives:	

Comment:

Unfortunately, there is no clear national strategy for any of the above issues. The document that is the closest to such a strategy is the Slovenian Agri-Environmental Programme (SAEP), which provides measures for diminishing or preventing all the most important pollution sources from agriculture. SAEP is implementation of the demands of the EU Regulation 1257/99 and related regulations. Responsibility for the implementation of SAEP lies within the Ministry of Agriculture, Forestry and Food (MAFF).

Farmers enter SAEP voluntarily and can choose among different measures, some of them can be combined.

11.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

11.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation¹⁶⁴	General Reg.?	Specific Reg.?	Pollution Issue¹⁶⁵	Farming Practices Required/ Restricted by Regulatory Instruments¹⁶⁶	Level of Impl. & Enforcement¹⁶⁷	Reasons for Poor Implementation and/or Enforcement¹⁶⁸
<i>Water Act (Zakon o vodah; 12.7.2002)</i>	√		agrochemical inputs (plant nutrients, pesticides); farm wastes	Prohibited fertilisation and use of pesticides and herbicides on the land within the ground plan width 15 m from the water bank for waters of 1 st degree and 5 m from the waters of 2 nd degree.	2	low capacity of inspection (lack of staff, not optimal organisation)
<i>Environmental Protection Act (Zakon o varstvu okolja; OJ RS no. 32/93, 1/96)</i>	√			no specific reference to agricultural water pollution – demands only monitoring of missions (inputs) into soil, water etc.	2	defined in the <i>Regulation on the imission values of the dangerous substances in the soil</i> , see below. <i>Ordinance on the operational monitoring of the input of dangerous substances and plant nutrients into soil</i> , see below.

¹⁶⁴ Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

¹⁶⁵ Nutrients, farm wastes, pesticides or soil erosion

¹⁶⁶ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

¹⁶⁷ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

¹⁶⁸ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

<i>Agriculture Act (Zakon o kmetijstvu; OJ RS no. 54/2000, 16.06.2000)</i>	√		water pollution from agriculture in general – protection of drinking water	- announces the introduction of payments to encourage environment friendly agricultural practices; - describes organic farming and integrated plant production and announces preparation of detailed rules for those	2	due to limited funds, the implementation was up to now limited
<i>Agricultural Land Act (Zakon o kmetijskih zemljiščih; OJ RS no. 59/96)</i>	√		(1, 2) a general reference (3) a very short and unspecific reference	(1) demands prevention of pollution of water and agricultural land and prevention of erosion (2) provides possibility to use the tax paid for the change of agricultural land into land for other type of use for encouragement of environment friendly farming (3) demands from the farmer to act as a "good farmer" on the land rented from the State Fund of Agricultural Land	(1): too general to judge (2): 3 (3): 2	(1) A short reference only (2) not implemented in practice – other priorities (3) does not give any specific reference or priority to the prevention of pollution!
<i>Nature Protection Act (Zakon o ohranjanju narave; OJ RS no. 56/99)</i>	√			very unspecific: introduces the possibility of prohibition of farming practices and use of substances (in protected areas) that could negatively influence biodiversity , by special acts on protected area	(1): too general and too comprehensive to judge	n.a.
<i>Phytopharmaceuticals Act (Zakon o fitofarmaceutvskih sredstvih; OJ RS no. 11/2001, 16.02.2001)</i>		√	pesticides	sound use of pesticides: (1) describes the duties of public services in the training of the pesticide users (2) demands certification of pesticide spraying devices before selling and every 2 years of use	1 for both	n.a.

<p><i>Regulation on the input of dangerous substances and plant nutrients into soil, + its changes and amendments (Uredba o vnosu nevarnih snovi in rastlinskih hranil v tla + uredba o spremembah in dopolnitvah; OJ RS no. 68/96)</i></p>		√	<p>plant nutrients (mineral fertilizers, manure, slurry...; compost);</p>	<p>(1) maximum input of nitrogen from animal fertilizers (manure, slurry...) is 170 kg/ha in the whole area of Slovenia (whole country has been declared environmentally sensitive area); (2) max. input of phosphorous (as P₂O₅) from animal fertilizers is 120 kg/ha; (3) max. input of potassium (as K₂O) from animal fertilizers is 120 kg/ha; (4) sets maximum input of nitrogen (kg/ha/year) on water protection zones for different types of crops; (5) obliges farms with exceeding per ha production of nitrogen (from animal breeding) to remove the surpluses adequately; (6) prohibits fertilization in forests, with few very limited exemptions; (7) prohibits the use of manure and slurry on agricultural and other land, specifically for the type of use and soil conditions, in certain periods of year; (8) prohibits the use of mud from water treatment plants and certain types of compost on certain agricultural land, water catchment areas and several other areas; (9) demands from farm holdings to set up an operational programme for the implementation of relevant articles from this Regulation.</p>	<p>2 for water purification plants; 3 for farms and 3 for bigger agric. holdings</p>	<p>Farms/agric. holdings: not enough control on the field – many small farms and not enough inspectors; this is judgement only as relevant data hasn't been delivered to us</p>
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<p><i>Regulation on SAEP and introduction of direct payments for measures in 2001 (EKO2, EKO 3)</i></p>	√		<p>all pollution sources: plant nutrients, farm wastes, pesticides, soil erosion</p>	<p>Measures encouraged:</p> <p>(1) Reduction of the negative impact of agriculture on the environment:</p> <ul style="list-style-type: none"> • reduction of animal density/ha and excessive input of farm wastes into soil • suppress overgrowth of agric. land with forest – cleaning of overgrowth once a year • reduction of erosion in orchards and vineyards by planting/sowing adequate vegetation • maintenance of plant rotation to improve soil characteristics and fertility - greening of the fields in winter • integrated fruit production • integrated viticulture (vine growing) • organic farming <p>2) Maintenance of natural features, biodiversity, soil fertility and traditional cultural landscape: 8 measures, not directly related to the reduction of pollution but more to the maintenance of extensive and otherwise appropriate agricultural activity to achieve the goals of (2)</p> <p>(3) Protection of the protected zones (nature AND water protection zones):</p> <ul style="list-style-type: none"> • maintenance of farmed and populated landscape on nature protection areas; • restructuring of animal breeding in the area of large wild animals (bear etc.); • maintenance of birds' habitats • plant cover on water protection zones • introduction of grass cover and of fallow • All measures within (3) reduce pollution from agriculture. 	2	<p>This programme has been in 2001 implemented only as a pilot programme, which means that not all the measures have been implemented, due to the limited funds and to some missing data on biodiversity</p>
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Regulation on SAEP and introduction of direct payments for measures in 2002-2003 (EKO2, EKO 3)	√		all pollution sources: plant nutrients, farm wastes, pesticides, soil erosion	<p>Measures encouraged:</p> <p>(1) Reduction of the negative impact of agriculture on the environment:</p> <ul style="list-style-type: none"> • reduction of animal density/ha and excessive input of farm wastes into soil • suppress overgrowth of agric. land with forest – cleaning of overgrowth once a year • reduction of erosion in orchards and vineyards by planting/sowing adequate vegetation • maintenance of plant rotation to improve soil characteristics and fertility - greening of the fields in winter • integrated fruit production • integrated viticulture (vine growing) • organic farming <p>(2) Maintenance of natural features, biodiversity, soil fertility and traditional cultural landscape:</p> <p>8 measures, not directly related to the reduction of pollution but more to the maintenance of extensive and otherwise appropriate agricultural activity to achieve the goals of (2)</p> <p>(3) Protection of the protected zones (nature AND water protection zones):</p>	1-2	In 2002 – 2003, almost all the measures are being implemented, but few are still missing the implementation
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				<ul style="list-style-type: none"> • maintenance of farmed and populated landscape on nature protection areas; • restructuring of animal breeding in the area of large wild animals (bear etc.); • maintenance of birds' habitats • plant cover on water protection zones • introduction of grass cover and of fallow <p>All measures within (3) reduce pollution from agriculture. Obligation for the farmer: to implement the selected measure(s) for 5 years (until 2006).</p>		
<i>Regulation on the emission values of the dangerous substances in the soil</i> (Uredba o mejnih, opozorilnih in kritičnih imisijskih vrednostih nevarnih snovi v tleh; OJ RS no. 68/96)	√	√	pesticides (by active substances)	input of pesticides limited to specific amounts of active substance (in mg substance per kg of soil)		
<i>Ordinance on the operational monitoring of the input of dangerous substances and plant nutrients into soil</i> (Pravilnik o obratovalnem monitoringu pri vnosu nevarnih snovi in rastinskih hranil v tla; OJ RS no. 55/97)		√	dangerous substances	monitoring only, very general (agriculture only a in a very limited way)		

<i>Guidelines for good agricultural practice in fertilization</i> (Navodilo za izvajanje dobre kmetijske prakse pri gnojenju; OJ RS no. 34/00)		√	See under point 3	See under point 3. - EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”	See under point 3	See under point 3
<i>Rules on organic production and processing of agricultural products and food</i> (Pravilnik o ekološki pridelavi in predelavi kmetijskih pridelkov oziroma živil; OJ RS no. 31/01)		√	agrochemical inputs (plant nutrients, pesticides); soil erosion	Organic farming: prohibits use of chemical pesticides and synthetic mineral fertilizers; demands good agricultural practice	1	
<i>Regulation on the water pollution tax</i> (Uredba o taksi za obremenjevanje vode; OJ RS no. 41/95, 44/95, 8/96)		√	agrochemical inputs (plant nutrients, pesticides);	introduces a tax for water pollution, also from agriculture	not possible to obtain enough information reg. agriculture	
<i>Regulation on the emission of substances in the flow off of waste water from animal breeding buildings, + its changes and amendments</i> (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov reje domačih živali + uredba o spremembah in dopolnitvah; OJ RS no.		√	nutrients (nitrogen, phosphorous, potassium)	appropriate removal of the waste water with nutrients exceeding the limits for their use on agricultural land of the farm that produced them, as set by other regulations	not possible to obtain enough information	

10/99 and 20. January 1999)						
<i>Decrees on drinking water protection on the level of municipalities: taken over by the state</i>		√				With Water Act in 2002, a number of previous local decrees are no more in the force. The responsibility is now on the national level.

The regulations below only partly or indirectly relate to the reduction of water pollution from agriculture, as they are limited to bigger agricultural holdings or to the processing of agricultural products; they are only listed for information:
Regulation on the emission of substances in the flow off of waste water from buildings and installations for production of plant and animal fats and oils (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za proizvodnjo rastlinskih in živalskih olj in maščob; OJ RS no. 10/99)
<i>Regulation on the emission of substances in the flow off of waste water from buildings for health care and veterinary practice</i> (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov za opravljanje zdravstvene in veterinarske dejavnosti; OJ RS no. 10/99)
Regulation on the emission of substances in the flow off of waste water from buildings for processing of animal residues (Uredba o emisiji snovi pri odvajanju odpadnih vod iz kafilerij; OJ RS no. 10/99)
Regulation on the emission of substances in the flow off of waste water from buildings for production, processing and canning of meat and meat products (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov za proizvodnjo, predelavo in konzerviranje mesa ter proizvodnjo mesnih izdelkov; OJ RS no. 10/99)
Regulation on the emission of substances in the flow off of waste water from buildings and installations for processing of milk and milk products (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za predelavo mleka in proizvodnjo mlečnih izdelkov; OJ RS no. 10/99)
Regulation on the emission of substances in the flow off of waste water from buildings and installations for production of beer and malt (Uredba o emisiji snovi pri odvajanju odpadnih vod iz objektov in naprav za proizvodnjo piva in slada; OJ RS no. 10/99)
Regulation on the first measurements and operational monitoring of waste water and on the conditions for the implementation of monitoring (Pravilnik o prvih meritvah in obratovalnem monitoringu odpadnih vod ter o pogojih za njegovo izvajanje; OJ RS 35/96)
Decree on the format of the report on periodical or continuous measurements in the frame of operational monitoring of waste water (Odredba o obliki poročila o občasnih ali trajnih meritvah v okviru obratovalnega monitoringa odpadnih vod; OJ RS no. 22/98)

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments ¹⁶⁹	Reasons for Any Lack of Implementation Capacity ¹⁷⁰
Water Inspection	implementation of the Water Act and regulations originating from it	2	Lack of staff
Health Inspection	implementation of the Water Act on the water protection zones	2	
Agriculture Inspection	implementation of "being a good farmer – manager", but there is no priority to the prevention of pollution from agriculture	2	Not enough staff; In some cases lack of knowledge (for instance, the inspectors lack knowledge on organic farming and thus misinterpret some measures taken by an organic farmer as "bad practice").
Agriculture Inspection	Implementation of the Phytopharmaceuticals Act	n.a.	n.a.
Agriculture Inspection	Implementation of the Agriculture Act	n.a.	n.a.
Agency for Agricultural Markets and Rural Development	Implementation of programmes and direct payments	2	Lack of staff; lack of experience (a new agency established for the implementation of SAPARD programme and later for the management of EU agricultural funds); complicated procedures that cause many complaints from the farmers.
Semi-public inspection bodies	Implementation of control and certification of organic farming and integrated plant production	2	2 (better for organic)

¹⁶⁹ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁷⁰ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

11.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with √ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue ¹⁷¹	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation ¹⁷²	Reasons for Poor Implementation ¹⁷³
Direct payments within SAEP (Slov. Agri-Env. Programme)		√	pesticides, nutrients, soil erosion	details see under 2.1	2	decision to convert to organic f. is still a relatively difficult one: a moderate but steady growth
Local communities: refunding inspection costs		√	pesticides, nutrients, soil erosion (indirectly)	Organic farming, integrated plant production	2	decision to convert to organic f. is for many farmers still a difficult one
Local communities: higher % of grants		√	pesticides, nutrients, soil erosion (indirectly)	Organic farming (50%) and integrated farming (30%)	new measure	n.a.

¹⁷¹ Nutrients, farm wastes, pesticides or soil erosion

¹⁷² For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹⁷³ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Penalty (4.200 – 42.000 EUR); Water Act	√		plant nutrients and pesticides	use of fertilisers or pesticides on water protection zones	not known	n.a.
Penalty (630 – 5.100 EUR); Agricultural Land Act	√		very general reference to pollution	pollution of agricultural land	not known	too general to be effective in practice; no priority to prevention of pollution
Penalty (630 – 5.100 EUR); Agricultural Land Act	√		very general reference to the "good farmer /manager"	good agricultural practice	not known	too general to be effective in practice; no priority to prevention of pollution
Penalty (420 – 630 EUR); Phytopharmaceuticals Act	√		pesticides	misuse / overuse / improper use of pesticides	not known	n.a.
Penalty (minimum 840); Regulation on the input of plant nutrients and dangerous substances into soil	√		plant nutrients	violation of the Regulation (see above)	not known	n.a.
Penalty (840 – 5.100 EUR); Agriculture Act	√		indirectly!	use of label "organic" or "integrated" for agricultural products and food without proper certificate	2	market inspection does not implement properly yet

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments¹⁷⁴	Reasons for Any Lack of Implementation Capacity¹⁷⁵
Ministry of Agriculture, Forestry and Food	issuing Regulations related to agri-environmental payments	2	organisational deficiencies, limited financial resources; priorities not set in favour of maximum pollution prevention
Agency for Agricultural Markets and Rural Development	collecting applications and execution of payments	2	not optimal organisation and a lack of staff to deal with a large number of applications and also with numerous complaints of the applicants after the decisions have been taken; still a lack of experience although improving
Water Inspection	implementation of the Water Act and regulations originating from it	2	Not enough staff;
Health Inspection	implementation of the Water Act on the water protection zones	2	n.a.
Agriculture Inspection	implementation of "being a good farmer – manager", but there is no priority to the prevention of pollution from agriculture	2	Not enough staff; In some cases lack of knowledge (for instance, the inspectors lack knowledge on organic farming and thus misinterpret some measures taken by an organic farmer as "bad practice").
Agriculture Inspection	Implementation of the Phytopharmaceuticals Act	not known	n.a.
Agriculture Inspection	Implementation of the Agriculture Act		Not enough staff (the number of inspectors does not allow to perform enough control visits); priorities not well set (a detailed control of minor issues but neglecting issues with great importance for pollution)
Market (Trade) Inspection	Implementation of labelling of organic and integrated products and foods	2	2 (better for organic)

¹⁷⁴ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁷⁵ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

11.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue ¹⁷⁶	Farming Practices Encouraged/ Discouraged by the Advisory/Informative Instrument	Implementation and/or Uptake ¹⁷⁷	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	YES	Pesticides, nutrients, erosion	encourage organic farming	2	very limited outreach – the number of independent advisors is very small; small SLO farms can not afford to pay independent advisors;
Technical assistance by State advisory service	YES	Pesticides, nutrients, erosion	encourage: integrated plant production; organic farming;	2	The no. of integrated and organic farms is growing steadily, however the growth could be faster. Many advisors are still sceptical against organic farming, due to the lack of knowledge / training.
Technical assistance by providers of farm inputs	YES	Pesticides, nutrients	encourage: less environment-damaging pesticides	3	very little; not always good for the reduction of pollution!
Education and awareness-raising campaigns	YES	general	encourage farmers to enter SAEP	2	lack of impact (certain improper campaigning actions do not reach farmers);

¹⁷⁶ Nutrients, farm wastes, pesticides or soil erosion

¹⁷⁷ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Demonstration farms	NO			3	
Learning by sharing of ideas among the farmers	YES	Pesticides, nutrients, erosion - indirectly	organic farming, integrated plant production	2	only as activities initiated by farmers' associations, not a strategically planned long-term activity; i.e. excursions to other farms, etc.
Publications and other information materials	YES	Pesticides, nutrients, erosion	good practice of fertilization; good agricultural practice; organic farming, integrated plant production;	2	mostly solitary activities; most publications are not available constantly
Training	YES	Pesticides	integrated plant production; organic farming; proper use and application of pesticides;	2	not always best quality of training offered;
Other (please describe): Information / awareness raising campaign by City Community of Ljubljana	YES	Pesticides, nutrients	discourage excessive use of pesticides and fertilizers	2-3	no legal consequences for those who misuse farm inputs;

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory /Information Instruments ¹⁷⁸	Reasons for Any Lack of Implementation Capacity ¹⁷⁹
Office for Plant Protection / Ministry of Agriculture, Forestry and Food	issuing regulations, issuing public tenders for training, technical assistance, education, publications, campaigns...	2	rigidity – relying on public structures only, not taking into account NGO/farmers' organisations' capacities for outreach and their expertise; lack of funds;
Dept. for Sustainable Farming / Ministry of Agriculture, Forestry and Food	issuing regulations, issuing public tenders for training, technical assistance, education, publications, campaigns...	2	rigidity – relying on public structures only, not taking into account NGO/farmers' organisations' capacities for outreach and their expertise; not enough consultation with these organisations in the preparation of regulatory documents; lack of funds; not always proper priorities;
Ministry of Environment, Spatial Planning and Energy	issuing regulations, issuing public tenders for projects comprising awareness-raising, training, etc.	2	very limited funds for activities in the field of agriculture (few NGO projects)
Agricultural Advisory Service	implementation of training, technical assistance, education, publications, campaigns...	2	not enough staff; staff not properly trained for all the tasks/issues; lack of funds;
Public institutes (regional agric. and research institutes)	implementation of training, technical assistance, education, publications, campaigns...	2	not enough staff; staff not properly trained for all the tasks/issues; lack of funds;

¹⁷⁸ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁷⁹ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Private institutes (NGOs)	implementation of projects, training, technical assistance, education, publications, campaigns...	2	not enough staff due to financial restrictions; lack of funds (very limited availability of public (national) funds);
Farmers' organisations (NGOs)	implementation of projects, training, education, publications, campaigns...	2	not enough staff due to financial restrictions; lack of funds;

11.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?

Project	Project Budget (EUR)	Pollution Issue ¹⁸⁰	Farming Practices Encouraged/Discouraged by the Project Activities	
1. a) Integrated viticulture (Integrirana pridelava grozdja, predelava, prodaja in promocija vina)	n.n.	pesticides, plant nutrients	(a) integrated plant production	Funded by PHARE CBC, 1999

¹⁸⁰ Nutrients, farm wastes, pesticides or soil erosion

¹⁸¹ Since the design and funding of projects varies significantly it is not appropriate to attempt to evaluate the success of the project, however any comments or observations on the success of the project in promoting the reduction of agricultural pollution would be useful

b) Sustainable vegetable and herb production (Naravi prijazna proizvodnja vrtnin in zdravilnih zelišč)			(b) less chemical inputs-intensive farming	
2. Organic farming and inspection (Ekološko kmetijstvo in kontrola ekoloških kmetij)	n.n.	all	organic farming	Funded by PHARE CBC, 2000
3. Farming on water protection zones and protection of drinking water (Kmetovanje na vodovarstvenih območjih in zaščita pitne vode)	n.n.	pesticides, plant nutrients, farm waste	green plant cover in winter; N-fertilisation on the basis of N-min analyses; control of organic fertilisation; reduction of pesticide use;	Funded by PHARE CBC, 2001
4. Conversion of farms in City Municipality of Ljubljana to Organic Farming	n.n.	all	organic farming	1998-2003, still on-going
5. Evidence of Water Polluters in Pomurje Region	4,160	general	less chemical inputs-intensive farming	Date: 2002-09-01/2003-05-01 Funded by REC/DANCEE
6. Fertilization of Vegetables with Nitrates as an Ecological Problem	4,800	nitrates	less chemical inputs-intensive farming	Date: 2002-09-01/2003-06-30 Funded by REC/ DANCEE
7. Water Pollution and Water Protection in Municipality Šentilj	5,000	general	less chemical inputs-intensive farming	Date: 2002-09-01/2003-05-31 Funded by REC/ DANCEE

8. Decreasing Negative Impacts of Agriculture for the Water Quality in Dreta River Basin	3.203	general	less chemical inputs-intensive farming	Date: 2002-07-15/2003-06-30 Funded by REC/ DANCEE
9. Sanitation of the Quality of Underground Water as a Source of Drinking Water and Strengthening of the Public Participation Action plan involves further activity: Underground water monitoring Preparing the project for building a lysimeter Building the measurements shaft for lysimeter Advising to the farmers Providing information for the public	15,000	pesticides and their metabolites (aldrine, atrazine, simazine, etc.), fertilizers (nitrogen concentration)	organic farming, integrated plant production	1999/2001 Along with professional and technological step for underground water quality sanitation this project will also increasing public awareness and the accession to environmental information improvement. Funded by REC/DANC
10. Local Agenda 21: Programme for Environment Protection in The City Municipality of Maribor	n.n.	all water and soil pollution and soil erosion problems	organic farming; integrated plant production; maintenance of green covering during winter (prevention of erosion and nitrogen leaking); sound management of manure; a balanced input of nitrogen and other plant nutrients into soil; point source pollution	September 2001 This is a comprehensive document dealing with environment protection in Maribor City Community in general. In the chapter on agriculture, all the problems of water pollution and soil erosion are pointed out, and measures to combat these problems are proposed (incl. time schedule and possible financial sources). Funded by REC/PHARE

11. Co-operation of schools in organic farming/ processing (Sodelovanj kmetijskih šol na področju izobraževanja za ekološko predelavo mleka in sadja)	42.100	general	organic farming – (indirectly – processing)	Funded by PHARE CBC, 2002
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Institutional Arrangements

Project	Institution/Organisation	Responsibility
Projects 1. – 3.	Kmetijski zavod Maribor / Agricultural Institute Maribor	development and implementation of the project
4. Conversion of farms in City Municipality of Ljubljana to Organic Farming	Institute for Sustainable Development, Ljubljana	development and implementation of the project
5. Evidence of Water Poluters in Pomurje Region	NGO/ Fishermens Club Murska Sobota	mag. Andrej Janc; development and implementation of the project
6. Fertilization of Vegetables with Nitrates as an Ecological Problem	NGO/ Slovenian Association for Integral Vegetable Production	Denis Topolnik; development and implementation of the project
7. Water Pollution and Water Protection in Municipality Šentilj	NGO/ Fishermens Society Mura Paloma	Branko Plošnik; development and implementation of the project
8. Decreasing Negative Impacts of Agriculture for the Water Quality in Dreta River Basin	NGO/ Society for Water Protection "Dreta"	Franc Bastl; development and implementation of the project
9. Sanitation of the Quality of Underground Water as a Source of Drinking Water and Strengthening of the Public Participation	Municipality of Maribor - Environmental Protection Agency	dr. Vesna Smaka - Kincl; development and implementation of the project
10. Local Agenda 21: Programme for Environment Protection in The City Municipality of Maribor	Municipality of Maribor - Environmental Protection Agency	dr. Vesna Smaka - Kincl; development and implementation of the project
11. Co-operation of schools in organic farming/ processing (Sodelovanj kmetijskih šol na področju izobraževanja za ekološko predelavo mleka in sadja)	Srednja biotehnična šola Kranj	development and implementation of the project

11.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?

Does this include the reduction of water pollution by agriculture?

Does this include water pollution caused by:

How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?

Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

The MAFF document titled *"Principles of a good agricultural practice and a good farmer"* are composed of two chapters that refer to the previously published documents (different Guidelines, Regulations etc.) that have been published in the Official Journal of the Rep. Slovenia or by the MAFF. This is a relatively short document (3 pages) that has been published by the MESP as a booklet.

Besides from issuing the booklet on good agricultural practice mentioned above, the *"Principles"* are not specially promoted. In the introductory paragraph, the document states that "...in a considerable extent, these principles are already a part of established practice on good Slovenian farms...". The current status of good agricultural practice respectively this document is rather worrying. The responsibility for its contents and implementation is shared by several ministries (Health, Environment, Agriculture) and up to now it has not find its proper place in the agricultural practice.

The first chapter "Principles of a good agricultural practice" deal with:

Fertilization. This chapter refers to the *"Guidelines for good agricultural practice in fertilization"* (Official Journal of the Rep. Slovenia 34/00).

Contents: to ensure a maximum uptake of nutrients by plants and minimum loss; to fertilize accordingly to the needs of individual crops; to respect water protection acts; different suggestions regarding the use, storage etc. of manure and slurry; a yearly fertilization plan according to the soil analysis (the later to be repeated every 5 years).

Yes	
Yes, although not in a very specific / direct manner	
Crop nutrients	Yes, indirectly (see above)
Animal wastes	Yes, indirectly
Pesticides	Yes, indirectly
Soil Erosion	Yes, indirectly
Other (please specify)	-
A small booklet on good agricultural practice has been published by the Ministry of Environment and Spatial Planning. The booklet is not available anymore.	
No	

Plant protection. This chapter refers to the *Principles of good agricultural practice in plant protection* (Ministry of Agriculture, Forestry and Food, 2000).

Contents: optimisation of cultivation (time, hygiene, fertilisation, other technology etc); use of resistant varieties; priority to non-chemical pest treatment; use of appropriate and registered pesticide; consider previous experiences and forecasts of the plant protection services; different measures to prevent occurrence of resistance in pests and to reduce the quantities of pesticides used; need for training on the use of pesticides; use of faultless and regularly checked spraying devices. The users must keep records on the use of pesticides.

The second chapter is titled "*Principles of a good farmer*":

Principles of a good farmer. This chapter refers to the *Law on Agricultural Land* (OJ RS 59/96) that requires from the owner, tenant or any other user of agricultural land to farm the land as a good farmer, adjusting agricultural production to the environmental and soil conditions and preventing erosion, pollution and ensuring a durable fertility of the soil. The criteria for a good farmer are set in the *Guidelines for judging the appropriateness of the farmer's practice* (OJ RS 29/86) that are the reference for the contents of the Principles:

Contents: timely and appropriate measures against quarantine and economically important plant pests and diseases (incl. quarantine parasite flowering plants); and several other measures that are at mostly not related to the protection of environment or water but more to an increased production.

11.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE "POLICY MIX"

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
prohibition of fertilisers and pesticides use on water protection zones	pesticides, nutrients, farm wastes	high	√	√	√		2
Time restrictions of the use of plant nutrients (acc. to the <i>Regulation on the input of plant nutrients and dangerous substances into soil</i>)	plant nutrients	high	√	√	√		2
integrated plant production (viticulture, fruit production)	pesticides, nutrients, soil erosion	moderate		√	√	√	2
organic farming	pesticides, nutrients, farm wastes, soil erosion	high		√	√	√	1-2 (economic incentive is restricted to direct payments)
Reduction of animal density/ha and excessive input of farm wastes into soil (SAEP)	farm wastes	moderate		√			2
Reduction of erosion in orchards and vineyards by planting/sowing adequate vegetation (SAEP)	erosion (indirectly also plant nutrients)	moderate		√			2
Maintenance of plant rotation to improve soil characteristics and fertility - greening of the fields in winter (SAEP)	erosion (indirectly also plant nutrients)	moderate		√			2
Plant cover on water protection zones (SAEP)	plant nutrients, erosion	moderate		√			2
Introduction of grass cover and of fallow (SAEP)	plant nutrients, erosion (indirectly also pesticides)	moderate		√			2

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

The present policy instrument mix does address the main agricultural pollution problems, but its outreach is insufficient. The biggest problem is in the implementation of existing regulative instruments and measures.

Another problem is setting of the priorities: lack of a pollution prevention strategy which results in an inconsistent mix of policy instruments.

- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?

Implementation of the *Regulation on the input of plant nutrients and dangerous substances into soil*. The data on its implementation by the farmers in practice is not available: there are no records on the frequency of violation, consequences etc. Taking into account the very limited capacity of responsible inspection and a high number of small farms, it is to estimate that its practical implementation is rather poor.

Implementation of the Water Act/ Prohibited fertilisation and use of pesticides and herbicides on the land within the ground plan width 15 m from the water bank for waters of 1st degree and 5 m from the waters of 2nd degree. Practice shows that even in the cases where the violators are found this does not prevent further violation of the Act. Inspectors denounce the violator and the process is rather long, the fines too small.

There is a lack of policy instruments to reduce misuse / overuse of pesticides and plant nutrients. Apart from water protection zones, there are only very few restrictions, besides voluntary programmes within SAEP that encourage certain good practices. In general, there are almost no (practically effective) regulative instruments that would address this problem.

In addition, the value added tax (VAT) for pesticides in Slovenia is 8,5% which is the lowest (preferential) VAT!

Similar problem is dumping of pesticides and other dangerous substances from agriculture. Often this occurs in the way that directly affects water. This issue is regulated (prohibition of such practices), but the implementation is poor. Very rarely the violators are found and punished.

There is a general lack of education and training and awareness raising among farmers and, for some issues, also among advisory services.

- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?

An adequate regulatory instrument to reduce misuse / overuse of pesticides and plant nutrients.

A comprehensive national strategy to reduce pollution from agriculture that will propose missing instruments and measures, incl. implementation of already existent measures, especially regulatory instruments.

A national strategy and an action plan to speed up the conversion to organic farming and ensure its balanced development. Organic farming has the best potential to minimize the pollution from agriculture and is an appropriate farming practice regarding Slovenian nature and agricultural features.

A financial instrument to facilitate proper management of farm wastes on Slovenian farms (investments into farm waste storing and composting capacities; technical assistance and training in farm waste composting and proper use of farm waste).

11.5 INFORMATION SOURCES

Finally – please identify below all sources of information (reports, databases, internet, meetings with officials etc.) that you have used during your review of pollution control policies

Internet sources:

Ekološki inženiring in svetovanje: <http://www.eco-ing.com/zakonodaja-slo.html>

City Municipality of Maribor, Mestna občina Maribor: http://www.maribor.si/MOM_INT/12-ZVO/project%20REC%2021258.pdf

City Municipality of Ljubljana, Mestna občina Ljubljana: <http://www.ljubljana.si>

Official Journal of the RS (for all regulative instruments): <http://www.uradni-list.si/>

City Municipality of Ljubljana, Holding: <http://www.holdingljubljana.si/voka/>

<http://www.grafiti.org/zvo98/03.htm>

http://www.gefweb.org/Documents/Council_Documents/GEF_C20/IW_-_Slovenia_-_National_Pollution_Annexes_.pdf

<http://www.kmetzav-mb.si/phare/phare.htm>

<http://www.sigov.si/mkgp/slo/skop/index.html>

http://www.sigov.si/mkgp/slo/organi_uprava_v_r_z_v.htm

http://www.sigov.si/mkgp/slo/organi_inspektorat_k_g_r_l_v.htm

<http://www.gov.si/mop/>

Publications, reports:

Irena Rejec-Brancelj: Kmetijsko onesnaževanje v Sloveniji (Agricultural pollution in Slovenia). Inštitut za geografijo, Ljubljana 2001

Slovenski kmetijsko okoljski program (Slovenian Agri-Environmental Programme). Ministry of Agriculture, Forestry and Food, Ljubljana 2001.

Mednarodne in meddržavne obveznosti RS na področju voda (international and inter-state commitments of Slovenia in the field of water). Ministrstvo za okolje in prostor, Agencija za okolje, oktober 2000.

Meetings:

NAME	ORGANISATION	FUNCTION
Mitja Bricelj	Ministry of the Environment, Spatial Planning and Energy	Counsellor to the government
Irena Rejec-Brancelj	Environmental Agency of Slovenia	Head of Reporting Office
Inga Turk	Ministry of the Environment, Spatial Planning and Energy	Counsellor to the government
Vesna Smaka Kincl	City Municipality of Maribor - Environmental Protection Agency	Director
Gorazd Maslo	City Municipality of Ljubljana – Department for Economy and Tourism, Unit for Agriculture and Forestry	Head of the Unit

Milena Koprivnikar-Bobek	Ministry of Agriculture, Forestry and Food – Administration of the Republic of Slovenia for Plant Protection and Seeds	Deputy State Secretary
Marta Hrustel Majcen	Ministry of Agriculture, Forestry and Food	Deputy State Secretary
Julija Škarabot	Regional Environmental Center for Central and Eastern Europe	Project Coordinator
Katarina Groznik	Ministry of Agriculture, Forestry and Food – Administration of the Republic of Slovenia for Plant Protection and Seeds	Director
Miran Naglič	Chamber of Agriculture and Forestry of Slovenia – Department for Plant Production	Head of the Department for Plant Production
Martina Bavec	Agricultural and Forestry Institute Maribor	Head of the Unit for Control and Certification of Organic Farming
Valentina Aleksič	Agricultural and Forestry Institute Maribor	Project Manager

Annex 12

Ukraine

12 Ukraine

POLICY REVIEW QUESTIONNAIRE

Country under Review	UKRAINE
Name of Expert(s)	POGOZHEVA NATALIA POTABENKO MARIA

12.1 POLICY STRATEGY AND OBJECTIVES

	Yes/No
Is there a clearly defined national strategy for the control of water pollution caused by agriculture from:	
Nutrients – nitrogen and phosphorus?	No
Description of strategy: Policy objectives:	
Farm wastes – manure and slurry?	No
Description of strategy: Policy objectives:	
Pesticides?	No
Description of strategy: Policy objectives:	
Soil erosion?	No
Description of strategy: Policy objectives:	

12.2 POLICY INSTRUMENTS, MEASURES AND INSTITUTIONAL ARRANGEMENTS

12.2.1 Regulatory Instruments and Measures

- What regulatory instruments are used for protecting water from pollution by agriculture?
- Do these regulatory instruments specifically relate to water pollution from agriculture e.g. a *Decree for the Control of Nitrate Pollution in Water*?
- Or is agricultural pollution addressed within more general regulations e.g. a *Water Protection Act*?
- What are the key water pollution issues that the regulatory instruments address?
- What are the practical measures (i.e. requirements and restrictions) that farmers are required to comply with?
- What are the institutional arrangements for implementing the regulatory instruments and enforcing the requirements/ restrictions placed upon farmers?

Please complete the following tables taking care to clearly distinguish between “specific” and “general” regulations with √ where applicable:

Regulatory Framework for Agricultural Pollution Control

Regulatory Instrument e.g. Title of Legislation¹⁸²	General Reg.?	Specific Reg.?	Pollution Issue¹⁸³	Farming Practices Required/Restricted by Regulatory Instruments¹⁸⁴	Level of Implementation & Enforcement¹⁸⁵	Reasons for Poor Implementation and/or Enforcement¹⁸⁶
State Committee on Water Industry of Ukraine. “On Approval of Regulation On Execution of Control by State Committee on Water Industry of Ukraine bodies over Economic Use, Protection and Replenishment of Water Resources”	+		Pollution of water resources	Compliance with nature protection legislation requirements	2	Do not regulate pollution happened through agricultural activity, do not carry out explanatory work with polluters themselves, i.e. farmers
State Committee on Water Industry of Ukraine. “On Approval of Methodology of Calculation of Compensation of Losses of the State happened through Breakage of Water Resources	+		Pollution of water resources	Compliance with nature protection legislation requirements	1	Do not regulate pollution happened through agricultural activity

¹⁸² Please add additional information when necessary. For example, if the legislation is area specific then please indicate which part of the Danube River catchment area it covers. If the legislation does not cover any part of the Danube catchment, then do not include it

¹⁸³ Nutrients, farm wastes, pesticides or soil erosion

¹⁸⁴ For example – restrictions on the method, timing and rate of manure application; maximum number of livestock per hectare; prohibition of pesticide application in specified areas; compulsory green crop cover in autumn and winter etc.

¹⁸⁵ For assessing level of implementation and enforcement: 1 = fully implemented and effectively enforced; 2 = partial implementation and enforcement; 3 = not implemented

¹⁸⁶ Reasons for poor implementation and/or enforcement might include that the administration lacks the financial resources to check compliance; that the legislation is over-ambitious and farmers cannot realistically comply with it; that the pollution issue is not actually considered a serious enough problem by the implementing authorities to be concerned with; that farmers do not believe they cause any decline in water quality decline, and; that farmers are so poor no administration can realistically impose any penalty upon them

Protection Regulations on areas belonging to the Water fund, damage of water buildings and premises, violation of rules of their usage						
Ministry of Ecology and Nature Resources of Ukraine “On Approval of Methodology of Calculation of Losses happened through pollution and soiling of land resources as a result of nature protection legislation violation	+		Pollution of water fund lands	Compliance with nature protection legislation requirements	1	Do not regulate directly water resources pollution happened through agricultural activity
KMU Directive “On Procedures Regulating Water Resources State Monitoring”		+	Pollution of water resources	Compliance with nature protection legislation requirements	3	Monitoring alone does not guarantee effective actions against environmental protection, including water resources
KMU Directive “On Approval of Environmental Pollution Fees Elaboration Procedures and Payment of such Fees”		+	Pollution of water resources	Compliance with nature protection legislation requirements	3	Enterprises avoid payment of ecological fees
KMU Directive “On State Inspection and State Control over Execution of legislation on Pesticides and Agrochemicals”	+		Pollution of land, water, air, dangerous materials storage	Use of Pesticides and Agrochemicals in accordance with the current legislation requirements	2	There is no work being performed regarding environmental pollution by users of pesticides and agrochemicals-farmers

Law of Ukraine” Ratification of Convention on Cooperation on Protection and Proper Usage of Danube River”	+		Guaranteeing proper region’s development	Application of the principle “a party responsible for pollution must pay”, work in compliance with additional regulations elaborated in order to guarantee execution of the Convention requirements, informing citizens	3	There are no legislative acts regulating execution of the Convention’s requirements
Law of Ukraine “On Ratification of the Convention on Black Sea Protection against Pollution”	+		Guaranteeing stable development of the region	Compliance legislation requirements	3	There are no legislative acts regulating execution of the Convention’s requirements
Law of Ukraine “On Approval of the State Program on Environmental Protection of Azov and Black Sea	+		Guaranteeing stable development of the region	Compliance with nature protection legislation requirements	3	There are no legislative acts regulating execution of the Program’s requirements

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Regulatory Instruments	Reasons for Any Lack of Implementation Capacity ¹⁸⁸
Ministry of Ecology	Control, monitoring	1	Doubling of functions with State Committee on Water Industry of Ukraine, there is no legislative body in charge of environmental pollution happened through the agricultural activity

¹⁸⁷ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁸⁸ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

State Committee on Water Industry of Ukraine	Control, monitoring	1	Doubling of functions with Ministry of Ecology
State Committee of Ukraine on Land Resources	Control, monitoring	3	Control, monitoring only on the dried lands, control bodies' activities are not in conformity
Ministry of Agrarian Policy of Ukraine	Control, monitoring	2	Control and regulated environmental pollution happened through the use and storage of pesticides and chemicals only on the lands of agricultural usage as well as on surface waters of agricultural use.
Ministry of Ukraine of Emergencies	Control, monitoring	2	Controlling bodies' activities are not in conformity, lack of coordination with other legislative bodies
Ministry of Health of Ukraine	Control, monitoring	2	Controlling bodies' activities are not in conformity, lack of coordination with other legislative bodies

12.2.2 Economic Instruments and Measures

- Are there any economic instruments used for protecting water from pollution by agriculture?
- Do the economic instruments “punish” farmers for causing water pollution (e.g. fines, charges and penalties) or do they “reward” farmers for reducing the risk of water pollution (e.g. grants and other financial incentives)?
- What are the key water pollution issues that these economic instruments address?
- What are the farming practices that are encouraged/discouraged by the economic instruments used?
- What are the institutional arrangements for implementing the economic instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Please complete the following tables taking care to clearly distinguish between those instruments that “punish” farmers and those that “reward” farmers with ✓ where applicable:

Framework of Incentives/Disincentives for Agricultural Pollution Control

Economic Instrument	Punish?	Reward?	Pollution Issue¹⁸⁹	Farming Practices Encouraged/ Discouraged by Economic Instrument	Level of Implementation¹⁹⁰	Reasons for Poor Implementation¹⁹¹
Economic assessment of water resources	+		Complex	Pollution of water resources	3	Economic processes (inflation), lack of enterprises' funds for payment for resource's use, avoidance of usage fee payments and fines for violation of water protection regulations
Payment for water use (standard fees for special water use, for pollution substances throwing off into water resources)	+		Complex	Pollution of water resources	3	Economic processes (inflation), lack of enterprises' funds for payment for resource's use, avoidance of usage fee payments and fines for violation of water protection regulations
Issuance of Permits for special water use		+	Complex	Pollution of water resources	2	Permits are always issued to those who actively demand them
Compensation of losses in case of water regulations violations	+		Complex	Pollution of water resources	2	Avoidance of payment in case regulations violations

¹⁸⁹ Nutrients, farm wastes, pesticides or soil erosion

¹⁹⁰ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded incentive scheme and significant uptake of incentive payments by farmers); 2 = implementation is a limited success (e.g. well-funded incentive scheme, but poor uptake by farmers); 3 = unsuccessful implementation (e.g. poorly funded incentive scheme and poor uptake by farmers)

¹⁹¹ Reasons for poor implementation might include that the administration lacks the financial resources to fully implement an incentive or grant scheme; that the administration lacks the financial resources to fully implement a penalty system; that the economic incentives offered to farmers are too low to encourage uptake etc.

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Economic Instruments ¹⁹²	Reasons for Any Lack of Implementation Capacity ¹⁹³
CMU	Fixing of fees for pollution, investment planning, approval of instructions, standard fees for environmental pollution	1	There is no one common organisation in charge of water resources pollution happened through agricultural activity
Ministry of Ecology of Ukraine	Elaboration of articles, methodologies for calculation of pollution fees, issuance of permits for special water use, for throwing off of pollution substances, for placement and transportation of wastes, carrying out of ecological expertise, pesticides and agrochemicals testing and registration, approval of pesticides lists allowed for usage, accreditation of organisations that provide testing of pesticides and agrochemicals, issuance of licences and permits for import, production and use of non-registered pesticides and agrochemicals	1	Controlling bodies' activities are not in conformity, lack of coordination with other legislative bodies, lack of technical and other resources, personnel to execute control over environmental protection legislation execution
State Committee on Water Industry of Ukraine	Control and monitoring over water resources pollution, elaboration of conditions and regime for water use, coordination of permits for special water use, introduction of state registration and state cadastre	2	Authority regarding environmental protection only of land and water of agricultural usage, lack of one body within the Ministry responsible for water of agricultural usage pollution, there is no direct work with farmers due to lacking financial, technological and human resources

¹⁹² For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁹³ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

12.2.3 Advisory/Information Instruments and Measures

- Are there any advisory/information instruments used for protecting water from pollution by agriculture?
- What are the key water pollution issues that these instruments address?
- What are the farming practices that are encouraged/discouraged by the advisory/information instruments used?
- What are the institutional arrangements for implementing the advisory/information instruments and promoting the changes in farming practice required for protecting water from agricultural pollution?

Framework of Available Advice and Information for Agricultural Pollution Control

Advisory/Information Instrument	Yes/No	Pollution Issue ¹⁹⁴	Farming Practices Encouraged/ Discouraged by the Advisory/Informative Instrument	Level of Implementation and/or Uptake ¹⁹⁵	Reasons for Poor Implementation and/or Uptake
Technical assistance by independent advisory service	-				Lack of institutional, financial, human resources
Technical assistance by State advisory service	-				Lack of institutional, financial, human resources
Technical assistance by providers of farm inputs	-				Lack of institutional, financial, human resources
Education and awareness-raising campaigns	-				Lack of institutional, financial, human resources
Demonstration farms	+	More efficient agricultural production due to the use of more efficient means and technologies	Use of up-to-date technologies	3	Lack of institutional, financial, human resources, inactive attitude due to low understanding of environmental issues

¹⁹⁴ Nutrients, farm wastes, pesticides or soil erosion

¹⁹⁵ For assessing level of implementation: 1 = highly successful implementation (e.g. well-funded advisory campaign and significant modification of management practice by farmers); 2 = implementation is a limited success (e.g. well-funded advisory campaign, but limited modification of management practice by farmers); 3 = unsuccessful implementation (e.g. poorly funded advisory campaign and no modification of management practice by farmers)

Learning by sharing of ideas among the farmers	+ -	Use of more efficient means and technologies	Use of up-to-date technologies	3	low understanding of environmental issues
Publications and other information materials	+ -	Improvement of understanding of environmental issues by farmers			Unsatisfactory work with farmers due to lack financial and technological resources
Training	-				Lack of institutional, financial, human resources
Other (please describe):					

Institutional Arrangements

Institution/Organisation	Responsibility	Capacity for Implementation of Advisory/ Information Instruments ¹⁹⁶	Reasons for Any Lack of Implementation Capacity ¹⁹⁷
Ministry of Agrarian Policy of Ukraine	Guaranteeing of improvement related to the informational means of scientific-consulting, informational, legal and other services provided to the agricultural produce producers and users, monitoring of agricultural lands, coordination of renewal of their industrial value, determination of the main areas of state polity regarding use and protection of agricultural lands	2	Lack of institutional, financial, human resources

¹⁹⁶ For assessing capacity for implementation: 1 = high capacity for implementation and 3 = low capacity for implementation

¹⁹⁷ Reasons for any lack of implementation capacity might include lack of financial resources; lack of staff; lack of adequately trained staff; lack of policy-making experience; poor organisation and management; poorly defined role and responsibility; poor co-operation between Ministries is blocking decision-making; poor co-operation with NGO sector etc.

Ministry of Ecology of Ukraine	Informing governmental bodies, local municipal governmental bodies and citizens about ecological condition of territories and resources, cases and reasons for extreme pollution of environment, guaranteeing of dissemination of ecological knowledge of citizens, coordination of cooperation between citizens and nature protection organisations, approval of regulations on citizens' control	1	Lack of institutional, financial, human resources
State Committee on Water Industry of Ukraine	Informing governmental bodies and municipal bodies and population through Mass Media on the water resources' pollution level	3	Lack of institutional, financial, human resources and wide authority level

12.2.4 Project-based Instruments and Measures

- Are there any current or recent projects (e.g. within the last 5 years) that have or had the protection of water from pollution by agriculture as an objective? Please include both national and international projects
- What is/was the approximate budget for these projects?
- What are the key water pollution issues that these projects address?
- What are the farming practices that are/have been encouraged/discouraged by the project activities?
- What are/were the institutional arrangements (e.g. source of funding, participating organisations etc) for implementing the projects and promoting the changes in farming practice required for protecting water from agricultural pollution?
 - There were some EU financed projects related to water legislations and other environmental issues. They mostly worked with the Ministry of Ecology and did not involved other stakeholders to the same extend.
 - There are in this moment no relevant international or national ongoing projects concerning agricultural pollution control, organic farming or Best Agricultural Practices but this is not a finally observation and it will be further investigated.

12.3 EXISTING PROGRAMMES AND PROJECTS PROMOTING “GOOD/BEST AGRICULTURAL PRACTICE”

We are particularly interested in any additional information relating to the promotion of “good” or “best agricultural practice” by farmers – you may have mentioned this already in section 2, but please answer the questions below:

Does the concept of “good” or “best agricultural practice” exist in your country?	No	
Does this include the reduction of water pollution by agriculture?	No	
Does this include water pollution caused by:	Crop nutrients	No
	Animal wastes	No
	Pesticides	No
	Soil Erosion	No
	Other (please specify)	
How is information on “good” or “best agricultural practice” available to farmers (e.g. as a Code of Good Agricultural Practice that is published as a booklet)?	None	
Are there any special programmes or projects for promoting the adoption of “good” or “best agricultural practice” by farmers?	According to our knowledge there are no such projects. During our interviews with different people in Kiev we hardly met any one who understand what “good or best agricultural practice” means not to mention farmers in the countryside. However, there are some projects sponsored by donor organizations and international agrochemical companies that promote and disseminate information regarding threat of fake pesticides etc.	

Please give more information on the practical measures included in “good” or “best agricultural practice” in your country

12.4 SUMMARY AND ASSESSMENT OF THE EFFECTIVENESS OF THE “POLICY MIX”

Please fill in the following table to summarise the practical on-farm measures promoted by the regulatory, economic, advisory/information and project-based activities above – in other words, list all of the farming practices that are encouraged/discouraged in order to reduce the risk of agricultural pollution in your country

Then for each farming practice that is listed, please:

- Identify the key water pollution issue that is being addressed (one practice may be used to address several issues) – nutrients, farm waste, pesticides or soil erosion
- Assess the potential of the change in farming practice to reduce the risk of water pollution– please describe as “high”, “moderate” and “low” potential with a short, clear justification (e.g. “High” – the prohibition of pesticide use within 10 metres of a river or lake significantly reduces the risk of water pollution)
- Identify what policy instruments are being used to encourage/discourage the change in farming practice – regulatory, economic, advisory or project – please use √ where applicable
- Assess how effectively the “mix” of policy instruments being used is actually leading to a reduction in the risk of water pollution caused by farmers – where 1 – highly successful (high potential to reduce water pollution plus high compliance/uptake by farmers); 2 = moderately successful (moderate potential to reduce water pollution plus moderate compliance/uptake by farmers); 3 = unsuccessful (low potential to reduce water pollution plus and/or compliance/uptake by farmers)

Practical On-farm Measure	Pollution Issue	Potential of On-farm Measure to Reduce Water Pollution	Policy Instruments Used				Effectiveness of “Policy Mix” at Reducing Water Pollution
			Reg	Econ	Adv	Proj	
Nutrient management	Nutrients	High	+				1
Animal waste management system	Farm waste	High	+				1
Permanent vegetative cover	Soil erosion	Low			+		3
Strip cropping systems	Soil erosion	Low			+		3
Terrace system	Soil erosion	Low			+		3
Grazing land protection system	Soil erosion	Low			+		3
Cropland protection system	Soil erosion	Low			+		3
Conservation tillage system	Soil erosion	Low			+		3
Fertilizer management	Fertilisers	High	+				2
Pesticide management	Pesticides	High	+				2

Based upon the information that you have collected, please provide your opinion on the following issues:

- How well does the “mix” of policy instruments address the main agricultural pollution problems in your country?

The present “mix” of policy instruments does not guarantee safety with regard to agriculture pollution problems in Ukraine and is neither risk- nor science-based. Some of the explanation could be:

- There is no real understanding of the threat of agriculture pollution within state political power and therefore no National strategy to address the main agricultural pollution problems
 - Legislation remains ambiguous and lacks the clarity and transparency and only partly developed. Even in cases when important laws are introduced they are not supported by regulatory acts, standards etc. One can say that the law system is not efficient due to the fact that laws have not been substantiated by corresponding legislative acts and standards.
 - Environmental protection control is being exercised by several governmental bodies which causes double functions or insufficient coordination of some types of activity. Ministry of Ecology and three committees have been authorized to bear functions of state managerial bodies in charge of environmental protection. Governmental control in this area is also being exercised by several bodies - Ministry of Ecology, Interior Affairs Ministry, Health Protection Ministry, Agro-Industrial Complex Ministry, State Border Committee
 - The relevant institutions do not have appropriate power and lack sufficient resources to ensure its role in protecting environment. For example, the only institution which is more or less adequately equipped to control agricultural pollution and has its offices in all regions of Ukraine - *State technological centre of preservation of soil fertility* – does not have authority and funds to implement even existing practical measures that are required at farm level
 - There is no public ecology control and information system in Ukraine. Public awareness on these issues is very low and media undeveloped. There is a long way to go to build up a civil society in Ukraine and it explains the fact that ecology NGO and public information service are not ready yet in order to actively participate in ecology movement and influence decision-making process
- Are there any significant gaps in the policy mix where the risk of water pollution from agriculture is not adequately addressed?
 - Monitoring of surface waters is being exercised by the Ministry of Ecological Resources (hydro-meteorological department), Emergency Ministry (in areas polluted by radio-nuclides) and Health Protection Ministry (in recreational areas); surface waters of agricultural usage, agricultural plants, soils of agricultural usage – by Agro-Industrial Complex Ministry, irrigated and dried lands – by State Committee on Water Resources and State Committee on Soils, ground waters - Ministry of Ecology (department of geology).
 - An analysis of river basins pollution in Ukraine is being performed without distribution by pollution source such as, e.g., industrial, object-related, agricultural or household. Water in basins is checked as to the petrol and oils content, hard sediments (precipitation), sulphates, chlorides, phosphorus, ammonia nitrate, phenols, nitrates, iron, copper, zinc, nickel, chrome, mercury as well as other chemical elements and combinations.
 - All levels Councils in Ukraine (city, rayon) have the right to control nature protection legislation. Being as an elective body, they do not bear responsibility for the decisions taken and do not have a mechanism to ensure its done professionally
 - Even the best policy instruments often very poorly enforced. The absence of an effective control mechanism in Ukraine and high corruption of Customers and Borders offices explain the fact that Ukraine is becoming so-called dump market. Low quality products, banned pesticides and fertilizers are entering Ukraine and sold on the market. According to experts, more than 50% of the products are illegal, i.e. not certified, or faked. All efforts and pressure from international agrochemical companies have not lead to any sufficient improvements yet.

- One of the major gaps in the policy mix is the absence of developed system of economic instruments and measures. Those which exist are mostly “punishing” and again very poorly enforced. The lack of sufficient funds and low culture of state and public control do not help to solve some immediate problems. There are huge storages of banned pesticides in Ukraine and this is considered as one of the biggest ecological threats. There are around 147 centralized storages of banned pesticides all around Ukraine and around 5 000 storages on the farms and agricultural enterprises. Almost all of them are considered to be inadequate and unsafe and there are many known cases when tragedy happened.
- What additional policies or on-farm practical measures should be developed in order to address the gaps in the policy mix?
- There is an urgent need for public awareness campaign and information dissemination about the threat of agricultural pollution to be undertaken through all level of society. Round table, workshops with a strong participation of NGO and state authorities and with a support of media campaign could be held to bring society attention to these issues and to discuss in a very transparent manner the legal, regulatory and economic measures which should be introduced to ensure the progress.
- It is a well known fact that there is a vacuum of information and knowledge on the farm level. There is none or almost none information sources farmers have an access to and extension service is only beginning to appear on the surface. Keeping in mind that Ukrainian landownership and farm structure has changed dramatically for the last few years and thousands of new private farms were set up, it is safe to assume that the lack of information and knowledge is also dramatic. The State, however, do not have sufficient funds to educate and train farmers and to introduce rather new concept of the “best agricultural practice”. Probably, the only way out is to combine both introduction of some economic system and instruments to encourage farmers and information dissemination on a wide scale with the support of network of donor projects and NGO.
- There is almost no collaboration or team work between the responsible ministries and a lack of communication exchange and between Ministry of Ecology and Ministry of Agrarian Policy as well as other players that can be recommended to stimulate by establishing regular meetings and round tables.
- Experts of agricultural extension services that are developing at the moment should be trained in order to be able to promote the ideas and philosophy of best agricultural practice and to deliver a qualified advise on these issues to farmers

12.5 INFORMATION SOURCES

List of contacts

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