

**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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**Danube Regional Project - Project RER/01/G32**

”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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# Contents

- Executive Summary ..... 1
- Introduction ..... 5
  - Aim of the Review ..... 5
  - Policy-making for Agricultural Pollution Control ..... 5
  - EU Policy Context..... 9
  - Harmonisation of National Legislation with EU Regulatory Instruments ..... 10
  - Preparation of EU Agri-environment Measures..... 14
  - Developing EU Concepts of “Cross Compliance” ..... 16
- Methodology Used ..... 19
- EU Acceding Countries..... 21
  - Strategies ..... 21
  - Regulatory Framework..... 21
  - Economic Instruments and Measures ..... 27
  - Advisory/Informative Instruments and Measures ..... 30
  - Project-Based Instruments and Measures..... 32
  - Promotion of Best Agricultural Practice ..... 34
  - Policy Mix ..... 36
- EU Candidate Countries..... 41
  - Strategies ..... 41
  - Regulatory Framework..... 41
  - Economic Instruments and Measures ..... 45
  - Advisory/Informative Instruments and Measures ..... 46
  - Project-Based Instruments and Measures..... 48
  - Promotion of Best Agricultural Practice ..... 51
  - Policy Mix ..... 53
- Other DRB Countries ..... 55
  - Strategies ..... 55
  - Regulatory Framework..... 55
  - Economic Instruments and Measures ..... 58
  - Advisory/Informative Instruments and Measures ..... 60
  - Project-Based Instruments and Measures..... 63
  - Promotion of Best Agricultural Practice ..... 64
  - Policy Mix ..... 66

Summary of the Current Status of Agricultural Pollution Control Policies in the Central and Lower DRB.....	69
Existence of Strategies for Agricultural Pollution Control .....	69
Regulatory Frameworks for Agricultural Pollution Control .....	69
Use of Economic Instruments and Measures for Agricultural Pollution Control .....	69
Use of Advisory/Information Instruments and Measures for Agricultural Pollution Control.....	70
Project-based Instruments and Measures for Agricultural Pollution Control .....	70
Existing Situation with Development and Implementation of Best Agricultural Practice .....	71
Conclusions and Recommendations.....	73

**Annexes** (see separate volume)

Annex 1: Review of Agricultural Water Pollution Control Policy and Practice in the Danube River Basin	
Annex 2: Bosnia & Herzegovina	
Annex 3: Bulgaria	
Annex 4: Croatia	
Annex 5: Czech Republic	
Annex 6: Hungary	
Annex 7: Moldova	
Annex 8: Romania	
Annex 9: Serbia & Montenegro	
Annex 10: Slovakia	
Annex 11: Slovenia	
Annex 12: Ukraine	

## 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

<b>BG</b>	Bulgaria
<b>BA</b>	Bosnia and Herzegovina – consisting of 2 entities: <b>FedBH</b> – Federation of Bosnia and Herzegovina <b>RS</b> – Republic of Srpska
<b>CZ</b>	Czech Republic
<b>HR</b>	Croatia
<b>HU</b>	Hungary
<b>MD</b>	Moldova
<b>RO</b>	Romania
<b>SK</b>	Slovakia
<b>SI</b>	Slovenia
<b>UA</b>	Ukraine
<b>CS</b>	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”<sup>1</sup>.

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-making<sup>2</sup> and may, for example, be applied in agriculture via the government

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<sup>1</sup> 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.

<sup>2</sup> 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 later<sup>3</sup>. 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 regulation<sup>4</sup>, 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.

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<sup>3</sup> Croatia is also preparing its preliminary application for EU membership

<sup>4</sup> 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 follows<sup>5</sup>:

- 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)<sup>6</sup> 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.

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<sup>5</sup> 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](http://europa.eu.int/comm/agriculture/mtr/index_en.htm)

<sup>6</sup> 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
<b>Responsible Use of Pesticides</b>	<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"> <li>• 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.</li> <li>• 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.</li> </ul>
	<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"> <li>• 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.</li> <li>• 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.</li> </ul>
	<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"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul>
	<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"> <li>• 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.</li> <li>• 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.</li> </ul>
	<i>Directive 91/414/EEC concerning the placing of plant protection products on the market</i>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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'.</li> </ul>

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"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• This Directive places no direct obligation on farmers, but they influence the standards that must be met by them.</li> </ul>
<b>Improved Nutrient Management</b>	<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"> <li>• 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.</li> <li>• 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.</li> </ul>
	<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"> <li>• 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 NO<sub>3</sub><sup>-</sup> per litre as imposed by the EU Drinking Water Directive (above) and to control the incidence of eutrophication.</li> <li>• 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"> <li>Drawing up a Code of Good Agricultural Practice</li> <li>Designating zones vulnerable to pollution by nitrates</li> <li>Establishing and implementing Action Programmes within these zones to prevent further nitrate pollution</li> </ul> </li> </ul>
	<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"> <li>• See under Responsible Use of Pesticides</li> </ul>
<b>Avoiding Point Source Pollution</b>	<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"> <li>• See under Responsible Use of Pesticides</li> </ul>
	<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"> <li>• See under Responsible Use of Pesticides</li> </ul>

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"> <li>• 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.</li> <li>• 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.</li> </ul>

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 States<sup>7</sup>. 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 Directive<sup>8</sup>.

There is hope that the rules of the **Water Framework Directive (No. 2000/60)**<sup>9</sup> 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 Plans<sup>10</sup>. 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'<sup>11</sup>. 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

<sup>7</sup> 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

<sup>8</sup> 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.

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

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

<sup>11</sup> 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 WFD<sup>12</sup>, including:

- **CAP Pillar 1 – Market Support Measures** – according to the revised ‘Common Rules’ Regulation (No. 1782/2003)<sup>13</sup>, 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

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

<sup>13</sup> 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 services<sup>14</sup>.

### *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

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<sup>14</sup> 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 1782/2003<sup>15</sup>.

#### *“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

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<sup>15</sup> 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 2005<sup>16</sup>, 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 farm<sup>17</sup>.

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.

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<sup>16</sup> 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

<sup>17</sup> 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 review<sup>18</sup>
- 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)

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<sup>18</sup> 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:

<b>EU Acceding Countries</b>	Entering EU in 2004	Czech Republic, Hungary, Slovakia and Slovenia
<b>EU Candidate Countries</b>	Entering EU after 2004	Bulgaria, Romania and Croatia (preparing application to join EU)
<b>Other DRB Countries</b>	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

**HUNGARY**

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**

<b>The Water Act 184/2002 Coll.</b> , 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.
<b>The Waste Act 223/2001 Coll.</b> , 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,
<b>The Act on Agricultural Land Conservation 307/1992 Coll. (am. 83/2000 Coll.)</b> , 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"> <li>• measures for improvement of water regime and water quality</li> <li>• limits of fertilisers and pesticides</li> <li>• waste treatment measures</li> <li>• revitalisation of agricultural land (conversion of arable land to grasslands)</li> <li>• prohibition of agrotechnologies</li> </ul>
<b>The Act on Fertilisers 136/2000 Coll.</b> , 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.
<b>The Act on Plant Treatment 471/2001 Coll.</b> 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.
<b>The Act on Organic Farming 224/1998 Coll.</b> , 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.
<b>The Act on Nature and Landscape Protection 543/2002 Coll.</b> 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 <sup>st</sup> degree and 5 m from the waters of 2 <sup>nd</sup> 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 <sub>2</sub> O <sub>5</sub> ) from animal fertilizers is 120 kg/ha; (3) max. input of potassium (as K <sub>2</sub> 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**

<b>Economic Instrument</b>	<b>Punish?</b>	<b>Reward?</b>	<b>Pollution Issue</b>	<b>Farming Practices Encouraged/ Discouraged by Economic Instrument</b>
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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**

<b>The Water Act 184/2002 Coll.</b> , 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
<b>The Waste Act 223/2001 Coll.</b> , 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.
<b>The Act on Agricultural Land Conservation 307/1992 Coll (am. 83/2000 Coll.)</b> , 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"> <li>• measures for improvement of water regime and water quality</li> <li>• limits of fertilisers and pesticides</li> <li>• waste treatment measures</li> <li>• revitalisation of agricultural land (conversion of arable land to grasslands)</li> <li>• prohibition of agrotechnologies.</li> </ul>
<b>State Fund for protection and revitalisation of agricultural land.</b>		✓	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.
<b>Decree on Rural and Agricultural Development Plans 316/2001 (am. 515/2002 and 717/2002) - Agri-environmental programme</b> (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).
<b>The implementation of The Act on Fertilisers 136/2000 Coll.</b>	✓		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.
<b>Act on Nature and Landscape Protection 543/2002 Coll.</b> , 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.
<b>The Act on Organic Farming 224/1998 Coll.</b> , 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.
<b>Programme for support of implementation of environmental measures</b> (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
<b>SLOVENIA</b>				
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"> <li>Underground water monitoring</li> <li>Preparing the project for building a lysimeter</li> <li>Building the measurements shaft for lysimeter</li> <li>Advising to the farmers</li> <li>Providing information for the public</li> </ul>	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	✓	✓	✓	✓
<b>Description</b>	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.				
<b>How is information available to farmers?</b>	Published annually and attached to application form for support				
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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

<b>HUNGARY</b>	No	No	-	-	-	-
<b>Description</b>	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					
<b>How is information available to farmers?</b>	-					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	-					

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

<b>SLOVAKIA</b>	Yes	Yes	✓	✓	✓	✓
<b>Description</b>	<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"> <li>• Rules for storage of solid manure, slurry, silage effluent, dirty waters (evaluation of storage capacity according to animal production, etc.).</li> <li>• 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.)</li> <li>• 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).</li> <li>• Appropriate irrigation practices.</li> <li>• Animal production - technical requirement for in door keeping facilities, limits on grazing capacity (number of animals per hectare), and conditions for pasturing.</li> <li>• Appropriate soil cultivation practices.</li> </ul>					
<b>How is information available to farmers?</b>	Published in brochure					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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

<b>SLOVENIA</b>	Yes	Yes	✓	✓	✓	✓
<b>Description</b>	<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>
<b>How is information available to farmers?</b>	A small booklet on good agricultural practice has been published by the Ministry of Environment and Spatial Planning. The booklet is not available anymore.
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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"> <li>nutrient and IPM</li> <li>manure storage</li> <li>organic farming</li> <li>cleaning of pesticides dump</li> </ul> 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 clearly 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"> <li>• the storage of pesticides and waste on river banks and in coastal flooded areas</li> <li>• the construction of cattle-breeding farms on river banks and in coastal flooded areas</li> <li>• the disposal of fertilisers and organic</li> </ul>
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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"> <li>the washing-out of "packages, special uniforms and equipment" associated with fertiliser application in any surface water</li> <li>applying fertiliser in the sanitary protection zone around water sources used for drinking water</li> </ul>
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"> <li>fertilize in belt II of sanitary security area of water sources for water drink supply where the contents of nitrates exceed 35 mg/l;</li> <li>stock organic and mineral fertilizers in the lands adjacent to water sites or rivers or in the lands of coastal flooded river strips;</li> <li>deposit oddments of fertilizers and packages in the superficial waters or abandoned draw-wells;</li> <li>wash in the rivers, dams and other superficial water sites packages, special clothing and equipment related to the fertilization</li> </ul> <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 <sup>st</sup> ) to degraded water (4 <sup>th</sup> )
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"> <li>aerial spraying of pesticides</li> <li>spraying close to honeybees</li> <li>types of insecticide to be used to avoid harm to pollinating insects</li> </ul> In the section "Protection of water and aquatic ecosystems" there are additional obligations regarding: <ul style="list-style-type: none"> <li>the disposal of wastes and dangerous substances, such pesticides, in or near to rivers and other waters</li> <li>the washing of equipment and containers in natural waters, including those that have contained pesticides</li> </ul>
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"> <li>land slope, characteristics and type of soil, climatic conditions, irrigation systems etc.;</li> <li>agricultural practices and land use modalities, including the system of crop rotation</li> </ul> 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"> <li>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</li> <li>Criteria for identification of polluted waters both with dangerous substances or liable to such pollution.</li> <li>A table with maximum limits of dangerous substances at evacuation on surface waters;</li> </ul>

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**

<b>Economic Instrument</b>	<b>Punish?</b>	<b>Reward?</b>	<b>Pollution Issue</b>	<b>Farming Practices Encouraged/ Discouraged by Economic Instrument</b>
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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><b>Practices Encouraged</b></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"> <li>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.</li> <li>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.</li> <li>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</li> </ul>
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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"> <li>• Observing of production technologies form the pigs breeding farm;</li> <li>• Adequate applying of disinfection and rodent control methods for farm;</li> <li>• 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;</li> <li>• Proportioning the pig number as against wastewater treatment capacity and land surfaces capacity on which the residual products are applied.</li> </ul>

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	-					

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

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

	Concept of GAP/BAP Exists?	Includes Reducing Water Pollution?	Specifically includes water pollution by:			Soil Erosion
			Crop Nutrients ?	Animal Wastes?	Pesticides ?	
<b>ROMANIA</b>	Yes	Yes	✓	✓	✓	✓
<b>Description</b>	<p>Advice is offered to farmers on good practice regarding:</p> <ul style="list-style-type: none"> <li>• Fertilization rates e.g. adapting fertiliser rates to suit the type of crop and soil</li> <li>• Precautions for avoiding the risk of water pollution when using mineral fertilisers e.g. when soil is waterlogged or frozen</li> <li>• Fertilisation with manure and other waste resulting from poultry and animal husbandry</li> <li>• Soil erosion control e.g. depth, direction and time of poughing</li> <li>• Good agricultural practices for optimising the use of fertilisers and manures</li> </ul>					
<b>How is information available to farmers?</b>	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					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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, erosion	√	√			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

<b>Water protection law</b> 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
<b>BOSNIA &amp; HERZEGOVINA</b>	Yes	✓	-	✓	✓
<b>Description</b>	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.				
<b>How is information available to farmers?</b>	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.				
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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	
<b>MOLDOVA</b>	The concept of "good agricultural practice" exists in Moldova, but is not implemented	Farmers apply few procedures which reduce the risk of water pollution	✓	✓	✓	✓
<b>Description</b>	The practical measures on implementation of "good agricultural practice" in Moldova are developed in following Programmes and Project: <ul style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>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.</li> </ul>					
<b>How is information available to farmers?</b>	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					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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	
<b>SERBIA &amp; MONTENEGRO</b>	Yes	Yes	-	✓	✓	✓
<b>Description</b>	-					
<b>How is information available to farmers?</b>	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					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	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	
<b>UKRAINE</b>	No	-	-	-	-	-
<b>Description</b>	-					
<b>How is information available to farmers?</b>	-					
<b>Are there any special projects or programmes for promoting GAP/BAP?</b>	-					

### 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	-	-	-	-	-	-	-
<b>MOLDOVA</b>							
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