



Commission of European Communities, for
and on behalf of the Government of
Albania,

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Implementation of the National Plan for Approximation of Environmental Legislation in Albania

Component B: Implementation Planning



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DIRECTIVE SPECIFIC IMPLEMENTATION PLAN

Nitrate Directive (91/676/EC)

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List of Abbreviations

AGS	Albanian Geological Survey
CA	Competent Authority
CGAP	Code of Good Agricultural Practice
DSIP	Directive-specific Implementation Plan
EC	European Community <i>or</i> European Commission
ECE	Economic Commission for Europe
EEC	European Economic Community
ELPA	Environmental Legislation and Planning in Albania (project)
EU	European Union
GDP	gross domestic product
GIS	geographical information system
ha	hectare
kg	kilogramme
LWR	Law on Water Resources (No. 8093 of 21.3.1996 as amended)
MoAFCP	Ministry of Agriculture, Food and Consumer Protection
MoEFWA	Ministry of Environment, Forestry and Water Administration
N	nitrogen
ND	Nitrates Directive
NGO	Non-governmental organisation
NH ₄	Ammonia (chemically bound)
NO ₂	Nitrite
NO ₃	Nitrate
(N)VZ	(Nitrate) Vulnerable Zone
NWC	National Water Council
OECD	Organisation for Economic Cooperation and Development
O ₂	Oxygen
QA/QC	quality assurance/quality control
RBC(s)	River Basin Council(s)
RBMP	River Basin Management Plans
REA	Regional Environmental Agency
SAA	Stabilisation and Association Agreement
TA	Technical assistance
TAT	Technical Assistance Team
WFD	Water Framework Directive
WSRE	Water Sector Regulatory Entity

INTRODUCTION

The Albanian Government is bound to comply with the ruling of the European Union if wants to achieve membership, as transposition of EU legislation is a precondition for accession.

Failure to give legal effect to the Directive would result in the Government missing one of the objectives of European Community legislation which is that of providing a level playing field for the Europe-wide economy. Other EC Member States would consider it inequitable should Albania not comply and this will prevent Albania to achieve membership.

This report presents the results of the legal, administrative and institutional assessment of the current state of approximation to the *Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, as amended by Regulation (EC) 1882/2003*, and the overall plan to obtain full approximation in preparation to the country's accession to the EU.

The report highlights the gaps and problems/weaknesses that may hinder the effective transposition and implementation of the Directive and, therefore, identify the capacity enhancements needed to ensure its effective and efficient implementation. The report provides as well the best estimates of costs and benefits that can be made now.

The report draws on the examination of relevant available documentation, together with numerous contacts and detailed discussions held both within the Technical Assistance Team (TAT) and between TAT members and a wide range of key officials.

The report is divided in 5 main sessions. Section 2 provides a short overview of the Directive, and section 3 summaries the existing situation in Albania regarding approximation of this Directive, including an analysis of legal gaps. Section 4 discusses implementation mechanisms and sets out some recommendations for completion of approximation of the Directive. Indicative implementation costs assessment is presented in Section 5.

1 Executive summary

Purpose and intended effect of the implementation of the Nitrate Directive

Background

Questions have been raised about the general relevance of the Nitrate Directive for Albania on two main grounds. First, the overall input intensity in agriculture in the country is rather low. Both the average use of nitrogen and the density of livestock seem to be lower than the limits set in the Nitrate Directive. Second, it is argued that municipal and residential effluents are major sources of nitrate pollution and are more of a problem than agriculture.

While the Directive is not seen to be a priority for Albania, it is expected to pose significant restraints and costs on their farming sectors and present major challenges for monitoring and regulatory systems.

The problem

The bulk of provisions of the Directive have not been transposed into Albanian Legislation and, with the exception of some definitions foreseen in the Directive and provided by the Law “On veterinary” and the Law “On Plant Protection”, transposition has not yet commenced but is foreseen through some ministerial and governmental order tentatively scheduled for 2010.

The MoEFWA, together with the Ministry of Agriculture, Food and Consumer Protection and the Ministry of Health, is responsible for the identification of waters affected by pollution and the designation of nitrate vulnerable zones, but no decision has been made in that sense. Nitrates are not monitored although there are regular controls of chemical content in fresh and ground-waters.

Furthermore, the Ministry of Agriculture has not yet taken the necessary steps for drafting an action plan aiming at reducing nitrate pollution

The plan for approximation

The *legal transposition plan* includes some adjustments/amendments to the LWR (either introduction of missing obligations, or reformulation of existing

provisions that are not fully in accordance with the respective Directive's provision and clear provisions of legal basis) as well as the preparation of secondary legislation, including:

- Review and if necessary revise any relevant 'agriculture' legislation to ensure that it is not inconsistent with the Directive and with the amended LWR;
- Prepare a Regulation on Nitrate Pollution from Agricultural Sources under the amended LWR which will transpose the substantive parts of the Directive;
- Prepare a Code or Codes of Good Agricultural Practice.

The *implementation plan* is composed of a number of actions which have been consolidated into four major groups of implementation actions as follows:

1. Institutional strengthening and capacity building
 - *Appoint a Competent Authority*
 - *Strengthen laboratory capacity*
 - *Provision of technical assistance to help CA to get established and undertake initial activities and first round of action programmes*
2. Preparatory work and formulation of action programmes
 - *Identify waters that are, or could if action is not taken be, affected by nitrate pollution or eutrophication*
 - *Designate vulnerable*
 - *Establish action programmes for the vulnerable zone(s)*
 - *Awareness-raising, dissemination of information, consultation, and participation*
3. Monitoring, data handling and reporting
 - *Establish monitoring programmes to: a) assess the nitrates in surface waters and ground waters, b) review eutrophic state of surface freshwaters, estuary and coastal waters, and c) assess the effectiveness of the action programmes*
4. Implementation of action programmes and enforcement

Costs

The costs of transposing the Nitrates Directive into national law and implementing it were estimated separately. All costs are estimated in constant 2008 prices. As far as transposition is concerned, given the limited legal drafting resources within MoEFWA, it is recommended that support be provided to the legal team in aligning Albanian legislation as necessary (including drafting a code of good agricultural practice). The estimated cost of the technical assistance needed for this purpose will be €800,000. The estimated costs of implementation are:

- In regard to central government tasks: one-off costs of € 1.6 millions and ongoing recurrent costs of € 53,000 per year. Over 95% of the total one-off costs are accounted for by technical assistance, and it should be possible to cover these costs by grants from the EU and other international donors. The recurrent costs relate to the establishment of the administrative infrastructure at the environment and agriculture ministries, and will have to be financed by the state budget;

- Some costs will also be sustained by farms required to take measures to reduce their nitrogen losses. These costs are expected to be less onerous than in many other member states because of the low intensity of Albanian agriculture and the apparent relatively low nitrate levels in the environment. A total capital cost of between €300,000 and €1,300,000 falling on farms with at least 10 'animal units' is a rough first estimate of the costs. As knowledge of the problem advances as a result of the early diagnostic tasks of implementation a more accurate estimate will be possible.

2 Requirement of the EU Legislation

Because of environmental and health concerns over increasing nitrate concentrations in surface and ground waters in the EU, especially in intensively farmed agricultural areas, in 1991 the Council of Ministers adopted a Directive on the protection of waters against pollution caused by nitrates from agricultural sources (the Nitrates Directive, 91/676/EEC).

The objective of the Nitrates Directive (Directive 91/676/EEC) is to reduce water pollution (including ground waters) caused or induced by nitrates from agricultural sources, and to prevent further such pollution.

2.1 EU Legislation Covered

The EU legislation covered in this implementation plan is:

- Directive 91/676/EEC, concerning the protection of waters against pollution caused by nitrates from agricultural sources as amended by Regulation (EC) 1882/2003.

The objectives of the Directive are to reduce water pollution caused or induced by nitrates from agricultural sources and to prevent further pollution of this type.

The implementation of the Nitrates Directive proceeds as follows: identification of waters affected by such pollution and waters which could be affected by such pollution and designation of them and all known areas draining into those waters and which contribute to pollution as 'vulnerable zones'. For these zones action programmes to reduce pollution have to be established and implemented. Such action programmes contain mandatory measures, including maximum amounts of manure that can be applied to land every year, prohibition of the use of certain types of fertilizer at certain times of the year and requirements for storage vessels for livestock manure. For areas outside the vulnerable zones reduction of pollution has to be promoted by (voluntary) codes of good agricultural practice. Member States are in this context obliged to monitor the nitrate concentrations in ground waters and surface waters as well as monitor eutrophication in surface waters. Member States must also review and if necessary revise or add to the designation of vulnerable zones.

2.2 Direct Requirements of Legislation

The Directive imposes the following obligations on Member States:

- Identify, based on comprehensive monitoring over a one year period (Article 6(1) (a)), waters that are, or that could be, affected by pollution by nitrates from agricultural sources (Article 3 and Annex I). Polluted waters are defined according to the following criteria:
 - surface freshwaters and ground waters with nitrate concentrations of greater than 50mg/l, and
 - natural freshwater lakes, other freshwater bodies, estuaries, coastal waters and marine waters that are eutrophic

These criteria apply to all waters. The assessment applies to all waters, not just those currently used for the abstraction of drinking water;

- Designate as 'vulnerable zones' all known areas of land in the national territory which drain into the identified waters and which contribute to pollution under the above criteria. However, such a designation of vulnerable zones is not necessary if action programmes (under Article 5) are implemented throughout the whole territory. A review must be carried out every four years to revise or add to the list of vulnerable zones, if necessary. (Article 3);
- With the aim of providing a general level of protection for all waters, establish a code (or codes) of good agricultural practice (Annex II). This code is to be implemented by farmers on a voluntary basis. Programmes for training and informing farmers and promoting the code may be set up (Article 4 and Annex IIA);
- Establish and implement Action Programmes, either in respect of designated vulnerable zones or throughout the whole territory. An action programme may apply to the whole territory, or different action programmes may be established for different vulnerable zones or parts of zones. The Directive states that Action Programmes must include the measures in the code of good agricultural practice and, in addition, rules relating to:
 - Periods during which the application of certain types of fertiliser is prohibited.
 - The capacity of storage vessels for livestock manure, which "must exceed that required for storage throughout the longest period during which land application in the vulnerable zone is prohibited", unless it can be demonstrated that the excess will be disposed of in a manner that is not environmentally harmful.
 - Limitations on the application of fertilisers, consistent with good agricultural practice and taking into account: soil conditions, soil type and slope; climatic conditions, rainfall and irrigation; and land use and agricultural practices. There must be a balance between the nitrogen requirement of the crops and the nitrogen supply from the soil and from fertilisation.
 - The amount of livestock manure applied to the land each year, which must not exceed 210 kg of nitrogen per hectare (N/ha) during the first four-year Action Programme and 170 kg N/ha thereafter (Annex III).

- The Directive also instructs Member States to take any additional measures necessary to achieve its objective of reducing water pollution by nitrates from agricultural sources. It states: “In selecting these measures or actions, Member States shall take into account their effectiveness and their cost relative to other possible preventive measures” (Article 5(5)).
- Water quality monitoring, for which two different kinds of monitoring are distinguished (Articles 5 and 6):
 - on a national scale when mandatory Action Programmes have been implemented in accordance with Article 3.5, monitoring is required for surface waters and ground-waters to establish the extent of nitrate water pollution from agricultural sources (Articles 5(6)), and
 - on individual designated vulnerable zones, when the eutrophic state of running or standing surface freshwaters, and nitrate concentration, has to be monitored at least every 4 years (Article 6(1)(b)).
- Monitor the effectiveness of the Action Programmes that have been established (Article 6(5)).
- Reporting obligations to the Commission.
 - Establish a data recording and reporting system, in particular the Competent Authority is required to report to the Commission on:
 - designation of vulnerable zones (Article 3),
 - codes of good agricultural practice (Article 4),
 - changes made to Action Programmes (Article 5),
 - report on implementation of the Directive, every four years (Article 10 and Annex V),
 - transposition, with texts of the provisions of national law adopted in the field, and covered by the Directive (Article 12).

2.3 Indirect Requirements / Implications

The indirect requirements and implications of the Directive are:

- The requirements of the Drinking Water Abstraction Directive (75/440/EEC) concerning the quality required of surface water intended for the abstraction of drinking water and the Groundwater Directive (80/68/EEC) on the protection of groundwater against pollution caused by certain dangerous substances in order to increase surface water and groundwater water qualities, and for this case to prepare a systematic plan including timetable, will have to be implemented in parallel to the Directive.
- Sensitive Area Management Plans and Action Programmes will have to be considered together with the Urban Wastewater Treatment Directive (91/271/EEC), when implementing the Directive.
- Applying the combined approach for point and diffuse sources of pollution, the Water Framework Directive specifically (Article 10) requires that, as regards diffuse impacts, best environmental practices must be implemented. This includes the measures taken under the Nitrates Directive. In addition, the basic measures that must be

included and taken, as a minimum, within the programme of measures (Article 11) established for each River Basin District must include the measures taken to implement the Nitrates Directive. Furthermore, 'vulnerable zones' identified under the Nitrates Directive are included in the list of 'protected areas' in Annex IV of the WFD.

2.4 Links with Other Legislation

Links with other legislation within the water quality sector:

- Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water;
- Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances;
- Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment;
- Council Directive 79/869/EEC of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States;
- European Parliament and Council Directive 2000/60/EC of 23 October 2000 establishing a framework for Community Action in the field of Water Policy.
- Council Directive 98/83/EC of 11 November 1998 on the quality of water intended for human consumption.

Links with Other Legislation within other sectors:

- Revised Waste Framework Directive (2008/98/EC)¹;
- Sewage Sludge Directive (86/278/EEC);
- Reporting Directive (91/692/EEC) and amendment Decision 94/741/EEC;
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC);
- Environmental Impact Assessment (EIA) Directive (85/337/EEC) as amended by Directive 97/11/EC and Directive 2003/35/EC.

¹ The revised Waste Framework Directive (2008/98/EC) was signed on behalf of the European Parliament and the Council on 19 November 2008 and has been published in the Official Journal (OJ) of the European Union L312/3.

The new Directive clarifies and rationalises EU legislation on waste and replaces the existing Waste Framework Directive, the Hazardous Waste Directive, and the Waste Oil Directive.

It clarifies the meaning of 'waste' and those of other concepts like 'recycling' and 'recovery'. It applies a new waste hierarchy, expands the 'polluter pays' principle by emphasising producer responsibility, applies more stringent waste reduction and waste management targets for Member States and requires enhanced content in waste management plans.

3 Present Situation

Overall, Albania is moving toward the gradual approximation of its laws with the environmental legislation of the European Union, and it intends to complete its approximation process within a reasonable time frame. However, from a practical perspective, the main deficiency of the present legislation has been its limited implementation to date due to insufficient resources.

In this connection it is important to note that until adequate resources are provided for the implementation and enforcement of legislation, such transposition as may take place over the coming years will contribute little to the overall process of approximation.

With the exception of the basic definitions, the Nitrate Directive has yet to be transposed and it is not easy to see how it could be transposed on the basis of the existing legislation which is too narrow to achieve this.

The MoEFWA, together with the Ministry of Agriculture, Food and Consumer Protection and the Ministry of Health, is responsible for the identification of waters affected by pollution and the designation of vulnerable zones, but no decision has been made in that sense. Nitrates are not monitored although there are regular controls of chemical content in fresh and ground-waters.

Furthermore, the Ministry of Agriculture has not yet taken the necessary steps for drafting an action plan aiming at reducing nitrate pollution.

3.1 Roles & Responsibilities

At *central level* the main roles, as regard the Directive, will be played by the following Ministries:

Ministry of Environment, Forestry and Water Administration

The MoEFWA has a number of competences regarding water resources management, particularly as regard water pollution, permits for water discharges and water monitoring².

² Actually water monitoring services are carried out by Scientific Institutes through contracts with the MoEFWA. These are: Hydrometeorology Institute (surface water quality and quantity), Geological Survey Institute (groundwater quality), and the Institute of the Environment (wastewater discharges).

The MoEFWA is responsible for designating vulnerable zones.

Ministry of Agriculture, Food and Consumer Protection

This Ministry is responsible for one of the main water use sectors, namely irrigation for agriculture.

The Ministry in cooperation with the Centre of Transfer of Agriculture Technologies (Department of Land and Water usage) is expected to draft a Law on 'Control of use of fertilisers'. The law should introduce codes of good agricultural practice to provide all waters with a general level of protection against pollution.

3.2 Current Legal Framework

The Law No. 8093 dated 21.3.1996 'On Water Resources'³ (as amended by Law 8375 of 15.7.1998, Law 8605 of 20.4.2000, and Law 8736 of 01.2.2001) transposes all the definitions of the Directive.

Namely the following definitions of the Directive can be considered transposed: Article 2 (a), (c), (i), (j) and (k). It should be noted, however, that pollution (Article 2(j)) is widely defined in the national legislation and does not cover specifically nitrate pollution.

With the exception of these definitions, transposition has not yet commenced but is foreseen through some ministerial and governmental order tentatively scheduled for 2010.

3.3 Current Implementation Status

3.3.1 Legislation

The provisions of the Directive have not been transposed into Albanian Legislation (some of the definitions foreseen in the Directive: livestock and fertilisers are provided by the Law "On veterinary" and the Law "On Plant Protection", but they are related to Agriculture and Animal Health).

In the draft Law (prepared by the ELPA Project) amending the Law on Water Resources (LWR), Article 26/2 states: "*within 2 years from entry into force of the Regulation adopted in accordance to the requirements of Article 1(new draft), the National Council of Water, with the common proposal of the Minister(of Environment) and the Minister of Agriculture, Food and Consumer Protection, shall endorse detailed rules related to the use of fertilisers within the non-protected areas, in order to protect from pollution the water that is drained in this area*".

The draft Law on Water Resources has also been considered in this assessment – other than a definition of groundwater that appears in the draft LWR, the Nitrates Directive has not been transposed. However, the

³ Also variously called the Law on Water Sources and the Law on Water Reserves

Draft LWR Article 26C Pollution from Agriculture Sources creates the legal basis for transposing the Directive: The National Water Council is to publish a Regulation requiring all River Basin Councils to identify waters that are, or which could be affected by pollution from agricultural sources and to designate 'vulnerable zones'. In addition the NWC is to adopt rules concerning the use of fertilisers in vulnerable zones.

To meet this requirement, it will be necessary to draft a regulation (normative act) adopting Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources.

3.3.2 Institutional Arrangements

The MoEFWA, together with the Ministry of Agriculture, Food and Consumer Protection, and the Ministry of Health, will be responsible for the identification of waters affected by pollution and the designation of vulnerable zones, but no decision has yet been made to that effect. Nitrates are not monitored although there are regular controls of chemical content in fresh and ground-waters.

Furthermore, the Ministry of Agriculture has not yet taken the necessary steps for drafting an action plan aiming at the reduction of the nitrate pollution.

3.4 Current Investment Status

In order to implement the Directive the following types of investments are required:

- Investment in personnel;
- Investment in the necessary training and capacity building;
- Investment in water and groundwater quality monitoring capacity, including manual equipment to be used by inspectors in the field;
- Investment in appropriate laboratory capacity;
- Investment in concrete technical measures to prevent the discharge of nitrogen compounds into surface waters.

Investment in personnel

At present there are no persons on the staff of MoEFWA occupied on matters specifically covered by the Directive, i.e. nitrogen pollution of water and the role of agriculture and other sectors in this pollution.

The Chemical fertilizers Inspectorate of the MoAFCP (in Fushe-Kruje) has 3 specialists that are engaged with the nitrates as with all other kinds of fertilizers. The MoAFCP has a Directory for Plants Production and a Sector for Plants Protection. They cover fertilizers and nitrates between other things, but none of their staff is specifically engaged with the nitrates.

Capacity building and training

There have been a large number of technical assistance and other projects carried out in the water sector in recent years, particularly related to water supply, sanitation and water monitoring. However no TA projects have looked specifically at the issues addressed by the Directive.

Water quality monitoring

The current national rivers monitoring programmes in Albania are relatively extensive and include most of the polluted areas and environmental “hot spots”. The physico-chemical characteristics measured at selected monitoring stations by the Institute of Energy, Water and Environment (former Institute of Hydrometeorology) are usually confined to basic water quality and nutrient parameters with limited measurement of heavy metals, organics and selected priority substances.

The Albanian Geological Survey (AGS), is the main institution responsible for groundwater investigations. Water quality measurements include NH_4 , NO_2 , NO_3 and O_2 concentrations in water samples collected twice a year. At present the AGS also undertakes groundwater monitoring in 8 major production aquifers. The current groundwater quality monitoring network consists of 32 production wells installed into Quaternary (gravel) aquifers.

AGS has prepared and submitted to the MoEFWA several project proposals on groundwater monitoring that cover all the country and all groundwater bearing strata (porous, carbonatic, mollasic and magmatic aquifers), but due to lack of finances these projects have not been implemented.

Laboratories

The laboratories operated by the Hydro-Meteorological Service are capable of carrying out the required measurements of nitrogen in water samples, but are not accredited and do not currently have in place proper QA/QC procedures as envisaged in EU legislation.

Technical measures

No significant measures have been taken to reduce the pollution of surface waters by nitrogen-based and other nutrients.

4 Approximation Plan

4.1 Introduction

With the signing on 12th of April 2006 of the Stabilisation and Association Agreement (SAA) with the European Communities and their Member States, Albania has strongly confirmed its already clearly expressed political commitment to EU membership.

The National Plan for the Implementation of the SAA 2007 - 2012, approved by the Council of Ministry on 5th July 2006, to a certain extent provides a confirmation of the dedication of all relevant institutions and civil servants to respond to the requirements of the EU integration process.

One of the main conditions for EU membership is the integration and implementation of the EU legislation, the so called approximation process, which consists of three main components: legal transposition, practical implementation, and enforcement.

The overall plan to obtain full approximation is presented in the following paragraphs. It consists of a legal transposition plan and an implementation plan (including enforcement).

The *legal transposition plan* includes some adjustments/amendments to the LWR (either introduction of missing obligations, or reformulation of existing provisions that are not fully in accordance with the respective Directive's provision and clear provisions of legal basis) as well as the preparation of secondary legislation. A detailed description of the legal transposition plan is presented in paragraph 4.3.

The *implementation plan* is composed of a number of actions which have been consolidated into four major groups of implementation actions (refer below in Table 2). A detailed description of the implementation plan is presented in paragraph 4.4.

4.2 Approach regarding timetable for actions

The preparation of the Directive implementation plan implies the drafting of a timetable for actions. Setting such timetable is not a simple matter, and depends on the following considerations and criteria (among others):

1. At very least the legislation should have been transposed into national law by the date of accession to the EU. In principle it should also have been largely implemented. While it is possible to negotiate some transitional periods, i.e. deferment periods beyond the date of accession for achieving compliance, these transitional periods are normally only granted for a limited number of the 'cost-heavy' directives, and then only for specific named obligations under these directives. Although implementing the Nitrates Directive can impose significant costs on farmers, the European Commission has shown itself reluctant to grant transition periods under that Directive, preferring an approach whereby if necessary the more expensive measures in the action programmes are phased in progressively from the time of accession (for example in accession of Poland, Lithuania). The EU has made it clear that it considers the implementation of the Nitrates Directive a task of high priority. Albania's accession date has not yet been set, but it is widely accepted that this is unlikely to be before 2015.
2. Approximation involves heavy costs (perhaps several billions of euro for the environmental acquis alone). The longer the period over which approximation is programmed (subject to point (1) above), the more the cost burden, and the charge on certain limited resources (e.g. the time of lawyers within central government available for legal drafting), is spread. Quite apart from spreading costs by setting a longer timetable, total costs are actually sometimes reduced (this applies particularly in the case of investments by industrial or agricultural enterprises, when deferring an investment obligation can allow it to harmonise with other investment plans, for greater efficiency).
3. The 'priority' of the measure. For example although the transposition of the Nitrate Directive is regarded by the European Commission as being a high priority, acceding states in the past have not been expected to require significant investment programmes until after accession⁴.
4. The timing of a particular implementation action or activity is often dependent on other actions, relating either to the same directive or sometimes to other legislation.

⁴ See for example: EU Common Position (CONF-LT 54/00) submitted to the Conference on Accession to the European Union on 15 November 2000: "With regard to Directive 91/676/EEC on nitrate pollution from agricultural sources, the EU welcomes Lithuania's decision to withdraw its request for a transitional period and that it is ready to establish an action programme in 2003 and to begin its implementation by the date of accession."

Setting a timetable therefore involves finding the right balance between phasing the actions so that costs and scarce resources will not be overextended while nevertheless demonstrating sufficient progress to the EU and meeting the deadlines necessary compatible with Albania's timely accession to the Union.

In specifying the phasing over time of approximation actions, the approach taken has been to specify relative years (starting with year 0), based on a minimum comfortable timetable, but disregarding resource constraints. In practice the pace at which these directives/regulations can be transposed and implemented will depend on the availability of scarce manpower resources and budgets that have to be shared with other environmental sectors⁵. Resource constraints cannot be applied to individual directive implementation plan in isolation. When implementation plans have been drafted for all the directives to be tackled in this project, the overall cost picture can be assessed and adjustments made to the provisional (relative) timetables to reflect the considerations described above, thus ensuring affordable and practical proposals.

The milestones of the overall plan for full approximation are given in Table 1 below (starting in year 0).

Table 1: Milestones of overall approximation plan

Overall Approximation Plan	Start (month/year)	End (month/year)
<i>Legal Transposition</i>	<i>01/0000</i>	<i>06/0002</i>
<i>Implementation and enforcement</i>	<i>07/0002</i>	<i>12/0009</i>

4.3 Transposition Plan

The transposition plan is based upon the findings of the legal gap analysis which, themselves, formed the basis for identifying and deciding upon the future actions required to complete transposition of the Nitrate Directive.

These actions take as their starting point the draft LWR prepared by the ELPA project and are based on amendment to this draft and preparation of subsidiary legislation under this new draft LWR. These actions are prepared and discussed with the Ministry and other stakeholders.

The main actions of the transposition plan include:

⁵ A realistic (absolute) timetable for the legal transposition and related implementation and enforcement of these directives/regulations, taking into account the limited available resources and budgets, should be determinate as a part of a National Strategy for Environmental Approximation (which is not part of the present study), where the resource requirements of all the sectors are placed side-by-side and compared with the estimated available total resources.

- Amend LWR to transpose the basic requirements of the Nitrates Directive and to give the correct legal basis for subsidiary legislation to complete this transposition;
- Review and if necessary revise any relevant ‘agriculture’ legislation to ensure that it is not inconsistent with the Directive and with the amended LWR;
- Prepare a Regulation on Nitrate Pollution from Agricultural Sources under the amended LWR which will transpose the substantive parts of the Directive;
- Prepare a Code or Codes of Good Agricultural Practice.

4.4 Implementation Plan

The Nitrates Directive has proven one of the more challenging items of EU legislation to implement. Thirteen of the 15 ‘old’ member states (EU-15) have been at some time subject to legal proceedings with regard to its incomplete transposition or incorrect application. Seven of these were still outstanding at the time of the 2007 Commission report on the Directive’s implementation (COM (2007) 120).

The main findings of the gap analysis have formed the basis for identifying and deciding on the required future implementation and enforcement actions. Those actions will enable for full implementation and enforcement of this Directive and is the core of the Implementation Plan.

The actions needed to secure full implementation and enforcement of this Directive are presented in the Table 2 below together with a short description of each of the proposed actions, responsible institution and a proposed implementation period.

Table 2: Implementation and enforcement actions

Action	Responsible Institution	Implementation period (month/year)
<u>Appoint and equip a Competent Authority /authorities</u> (at national and/or river basin level) . Build capacity of CAs to implement ND.	Government, MoEFWA, MoAFCP, NWC, RBCs	04/0000 – 06/0000
<u>Identification of waters potentially affected by nitrate.</u> Detection of polluted or threatened waters will be based on at least 1 year monitoring data. Based on these results vulnerable zones are designated.	Competent Authority, Relevant Ministries	07/0000 – 12/0001
<u>Design of nitrate vulnerable zones (NVZs).</u> Vulnerable zones shall be appointed in order to protect the aquatic environment against high levels of nitrate loading. Agricultural production contributing to water pollution within a watershed which is or can be influenced by pollution shall be appointed as a vulnerable zone. Further, agricultural production in vulnerable zones shall be restricted in terms of a Code of Good Agricultural Practice (CGAP), amongst others.	Competent Authority, Relevant Ministries	01/0002 – 12/0002

<u>Training and information of farmers on CGAP</u> Set up where necessary a programme, including the provision of training and information for farmers, promoting the application of the CGAP.	MoAFCP	01/0004 – 06/0004
<u>Elaboration of Action Programmes for vulnerable zones with binding rules.</u> Action programmes are programmes of legally binding measures intended to reduce or prevent further nitrate pollution in vulnerable zones and will include measures such as nitrate balance, manure storage, spreading of <170 kg organic N/hectare/year on land ⁶ . The CGAP will be mandatory in vulnerable zones (except where CGAP measures are superseded by other action programme measures).	Competent Authority, Relevant Ministries	01/0001 – 12/0003
<u>Implement action programmes and CGAP in vulnerable zones, and implement CGAP voluntarily on farms outside the vulnerable zones.</u> Those farms specified in action programme, i.e. of defined profile and size, to implement measures according to the timetable specified in the programme.	Farms in vulnerable zones	06/2004 →
<u>Implementation of national programme for monitoring the nitrate concentration in freshwater and reporting system.</u> The Directive requires the submission of report to the Commission every 4 years following its notification. This report should include information pertaining to codes of good farm practice, designated nitrate vulnerable zones, results of water monitoring and a summary of relevant aspects of action programmes for vulnerable zones.	Competent Authority, Relevant Ministries	01/0002 – 12/0003
<u>Provide resources for enforcement</u> Inspectors will be needed to ensure farmers in VZs comply with the requirements.		

The identified implementation actions can be compiled into the following four main groups of actions:

1. Institutional strengthening and capacity building.
2. Preparatory work and formulation of action programmes.
3. Monitoring, data handling and reporting.
4. Implementation of action programmes and enforcement

Institutional strengthening and capacity building

- *Appoint a Competent Authority:* A Competent Authority (CA) must be designated, and the required staff for implementing the Directive identified and employed⁷. The necessary hardware and software shall be procured. Training shall be provided in the tasks required for the implementation of the Directive. Institutional arrangements (assignment

⁶ The Directive allows derogations from this restriction, but only where it can be justified and where it will not compromise the objectives of the Directive.

⁷ In practice there are likely to be at least two competent authorities, with the MoEFWA, for example being responsible for overall implementation and the MoAFCP responsible for the outreach to farms, the Code of Good Agricultural Practice and enforcement.

of responsibilities, definition of working procedures, relation between stakeholders, etc.) shall be established.

- *Laboratory capacity:* The CA need to ensure that there is sufficient capacity for measuring nitrate in surface waters and groundwater. The existing laboratory facilities are technically adequate to meet present needs. However investment in laboratory refurbishment, upgrading, provision of appropriate (not necessarily new) equipment and methods, qualified and trained professional staff, and accreditation in accordance with ISO 17025 is required.
- *Technical assistance to help CA to get established and undertake initial activities and first round of action programmes:* This would include defining precise demarcations, coordination mechanisms and communication structures between the various authorities, particularly the MoEFWA, the MoAFCP and the RBCs, provision of training, preparing job descriptions, workplans and manuals of procedures, and supporting the relevant agencies carry out their first round of planning and tasks, including the following activities *specified below*:
 - prepare a programme for disseminating and promoting the code of good agricultural practice to, and build awareness amongst relevant farmers;
 - identifying and delineating vulnerable zones;
 - drafting action programmes.

Preparatory work and formulation of action programmes

- *Identify waters that are, or could if action is not taken be, affected by nitrate pollution or eutrophication:* The CA must prepare criteria for defining and determining the degree of eutrophication in affected waters⁸, and must prepare criteria for defining and determining the extent of waters affected by nitrate pollution, in accordance with Annex 1 of the Directive. Inclusion of key stakeholders to participate in this process, provision of up-to-date scientific advice, reaching compliance with EU legislation, and maintaining obligations under any International Conventions where Albania is signatory are critical to this implementation stage. Those waters which exceed, or in danger of exceeding, 50 mg/l nitrogen must be identified. Among others, these include:
 - surface waters, in particular those for the abstraction of drinking water,
 - groundwater containing more than 50 mg/l nitrates,
 - freshwater lakes, other freshwater bodies, estuaries, coastal waters and marine waters which are or may become eutrophic.

⁸ To date there have been no common criteria for member states to evaluate the trophic status of surface waters, and this has hampered discussion and comparability. When the results of the intercalibration exercise under the water framework directive are made known, these will hopefully include recommendations with regard to harmonising the criteria to define eutrophication (European Commission report to the Council and the European Parliament on implementation of the Nitrates Directive for the period 2000-2003). COM(2007) 120 final, March 2007.

The catchment areas draining water polluted by nitrates into surface water bodies must be determined based on a river basin approach.

- *Designate vulnerable zones:* Vulnerable zones are defined in Article 3(2) as all known areas of land which drain into the [polluted or potentially polluted] waters identified above and which contribute to pollution. In order to properly identify such zones, the competent authority needs to have (i) representative monitoring data for all potentially polluted surface and ground waters and (ii) the review made under the WFD of the impact of human activity on the status of surface waters and on groundwater. The CA has the option, if it so wishes, to treat the entire national territory as though it were a vulnerable zone, as an alternative to designating specific zones. This has both advantages and disadvantages (see table below)

Table 3: Advantages and disadvantages of treating entire national territory as a VZ

<p><i>Advantages</i></p> <ul style="list-style-type: none"> • Avoids some of the work of designating vulnerable zones • Reduces costs of surveillance monitoring (but not of operational monitoring) • Easier to 'sell' to the European Commission • Single, consistent treatment of all farms in the country
<p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> • Is cost-inefficient if there are large number of farms which are not contributing to nitrate pollution

Generally the disadvantage would outweigh the advantage, i.e. it would not be attractive to treat the entire national territory as though it were a VZ, unless the proportion of the territory which would have to be designated a VZ is high.

- *Establish action programmes for the vulnerable zone(s):* The CA needs to consider whether to apply one action programme to all vulnerable zones, or establish different programmes for different vulnerable zones. Action programmes must:
 - take account of available scientific and technical data on the nitrogen contributions originating from agricultural and other sources, and on the environmental conditions;
 - contain as mandatory the measures laid down in Annex III (periods when the application of certain fertilisers is prohibited, limits on the quantities of fertilisers applied, a limit on the application of livestock manure per hectare to an amount containing no more than 170 kg N or 210 kg N during the first four year cycle of the action programme, conditions relating to the available storage capacity on farms for livestock manure)
 - make the measures set out in the code of good agricultural practice mandatory (except where superseded by Annex III measures);
 - specify such further cost-effective measures as are needed to meet the objectives of the Directive.

The final action programmes will be established following the adoption of the River Basin Management Plans as required by the Water Framework Directive. The action programmes should contain:

- Limits on the application of fertilisers.
- A minimum storage capacity of storage vessels for livestock manure,
- Measures to prevent water pollution by run-off and leakage into the groundwater and surface water of liquids containing livestock manures.

They are likely to contain a requirement that farms keep necessary records or draw up management plans, depending on the precise content of the action programmes.

- *Awareness-raising, dissemination of information, consultation, and participation:* The CA should assess the scope of options for awareness raising and training of farmers and their representatives about the implications of the Directive and decide on the necessary steps. This should be achieved in consultation with and participation from relevant Ministries and other bodies at national, regional and local level, as well as farmers' organizations. Consultation should begin at an early stage. The Competent Authority should also prepare a plan for disseminating information on the codes of good agricultural practice and on the action programs using workshops, working task groups, brochures, information meetings, training, and pilot projects. Preparation of those activities should be done in cooperation with other interested and involved parties such as farmers' associations, regional and local authorities, and other Ministries.

Monitoring, data handling and reporting

- *Establish monitoring programmes to: a) assess the nitrates in surface waters and ground waters, b) review eutrophic state of surface freshwaters, estuary and coastal waters, and c) assess the effectiveness of the action programmes:* The CA shall determine the sampling sites for water quality monitoring of surface waters and ground waters in compliance with the requirements of the Directive. Sampling sites could include established water quality monitoring sites under any national monitoring systems, or other stations representative of surface and/or groundwater conditions, and/or groundwater aquifers. The monitoring program must include validated sampling and testing over at least one year initially to obtain data on nitrate levels and the degree of eutrophication of surface waters and groundwater, and repeated at least every four years. The sampling program should apply to inland freshwaters where agricultural land can drain to these either directly or via rivers. The sampling and monitoring system has to provide information on the extent of nitrate pollution as well as on the progress achieved by implementing the action programs. Data gathered from the monitoring programs must be reviewed by the Competent Authority either on a national or on a local scale, and the review gathered and stored on an appropriate system such as the Laboratory Information Management System or similar. The Competent Authority shall also establish efficient databases and

reporting system to enable the recording and reporting of information gathered as a result of implementing the Directive's requirements. Relevant existing data (areas, soil properties, land use, agriculture practices, groundwater and surface waters, agricultural and non-agricultural sources of nitrates, etc.) should be reviewed and entered into the databases. It will be necessary to ensure reporting capacity within the Competent Authority on:

- designation of nitrate vulnerable zones, including monitoring results,
- action programmes, including storage requirements and restrictions in manure application,
- codes of good agricultural practice,
- review of designations of vulnerable zones, and
- time scales for expected improvements.

Implementation of action programmes and enforcement

- *Implement action programmes:* The action programmes having been formulated, they will eventually have to be implemented. This will be the task of the farmers or proprietors of intensive livestock enterprises themselves. Judging by previous experience the European Commission is likely to find it acceptable that implementation does not start until the date of accession to the EU.
- *Enforcement:* The authority competent for the enforcement of the Nitrates Directive should draw up an enforcement plan. This means determining the farms in vulnerable zones which have obligations under the action programmes, drawing up an inspection timetable and ensuring the inspectorate has the necessary human resources, transport, instrumentation and budget to carry out the task.

5 Costs and Benefits

This chapter seeks to assess the costs of approximating the Nitrates Directive in Albania, and to list the benefits. Neither of these tasks is straightforward at present. In relation to the costs it is not yet possible to be specific because there is not yet a clear picture of how much of the Albanian surface and ground waters are “affected by nitrate pollution or could be affected if action ... is not taken” in the sense of Article 3 of the Directive. As far as the benefits are concerned, these are identified, but no attempt is made to quantify them, at this stage in any case. Not only would this be a very difficult undertaking – partly for the reason already given with regard to the costs but also because of the intangibility of many of the benefits and the fact that the necessary data required to quantify even the more tangible benefits are not available. In any case a general quantification of the benefits, though it would be interesting, is not the issue in this Plan. The implementation of the Directive is a given since Albania proposes to become a member of the European Union, and the question is how this can be achieved efficiently and cost-effectively. The only circumstances in which a limited exercise in the evaluation of benefits could be necessary would be in a specific case where the costs of achieving the WFD objectives for a specific water body would be disproportionately high.

Section 5.1 assesses the resources required for approximation, section 5.2 considers the sources from which these costs might be financed, and section 5.3 identifies the benefits flowing from the Directive.

5.1 Resources and Costs

5.1.1 Method of cost estimation and sources of cost data

The costs of (i) transposing the Nitrates Directive fully into Albanian legislation and (ii) implementing it were estimated separately.

In the case of the *legal transposition* the starting point was the list of transposition actions listed in section 4.3. It is assumed that these actions will be carried out by the relevant legal and policy staff of the MoEFWA and the MoAFCP with the support of some technical assistance. This technical assistance is costed on the basis of the level of support needed to carry out the necessary work and standard assumptions about the unit costs of providing these inputs.

The starting point for costing *implementation* was the list of interventions contained in Table 2. This list was further disaggregated into actions and sub-actions as set out in Annex III.

The resource requirements of each action were estimated by the project experts. These resources comprised:

- human resources (the resources are generally assumed to be new resources which will be required on an ongoing basis),
- training requirements,
- technical and engineering measures including acquisition of the necessary equipment,
- production of necessary documents,
- technical assistance projects / experts (The resource allocated for technical assistance projects were based on estimates, drawing on experience, of the necessary technical assistance (TA) project inputs in terms of international and national consultants and other resources),
- expenses needed for any necessary consultation of farmers and other stakeholders, and of campaigns needed to inform these groups and raise their awareness, and
- enforcement

An estimate was made of the costs of these resources. The results of this costing are set out below. The approach taken in the costing and some overall assumptions made are described in the following sections.

One problem which arises is that the nature or the scale of some actions depends on the (as yet unknown) outcomes of earlier actions. An example is that the size of the vulnerable zones and therefore the costs which will be incurred by farms will not be known until existing water quality data have been studied, additional monitoring activities have been undertaken and a decision has been taken as to the areas at risk from nitrate pollution (see below). Such uncertainty is tackled either by drawing attention to the level of uncertainty involved and specifying the future actions which will reduce this uncertainty or employing a scenario-style approach where different alternatives are considered.

The necessary resources were estimated by the project experts. The cost estimation method and or data sources used are outlined briefly in Annex V

All costs are estimated in constant 2008 prices.

5.1.2 Key questions in costing Nitrates Directive for Albania

There are four key questions which have to be answered on the way towards costing the Nitrates Directive for Albania.

These are:

- What is the extent of nitrate pollution in Albania?
- To what extent is agriculture responsible for any nitrate pollution?

- What proportion of Albanian territory should be designated a vulnerable zone?
- How will small family farms be treated?

These questions are considered in turn below

Key question 1: What is the extent of nitrate pollution in Albania?

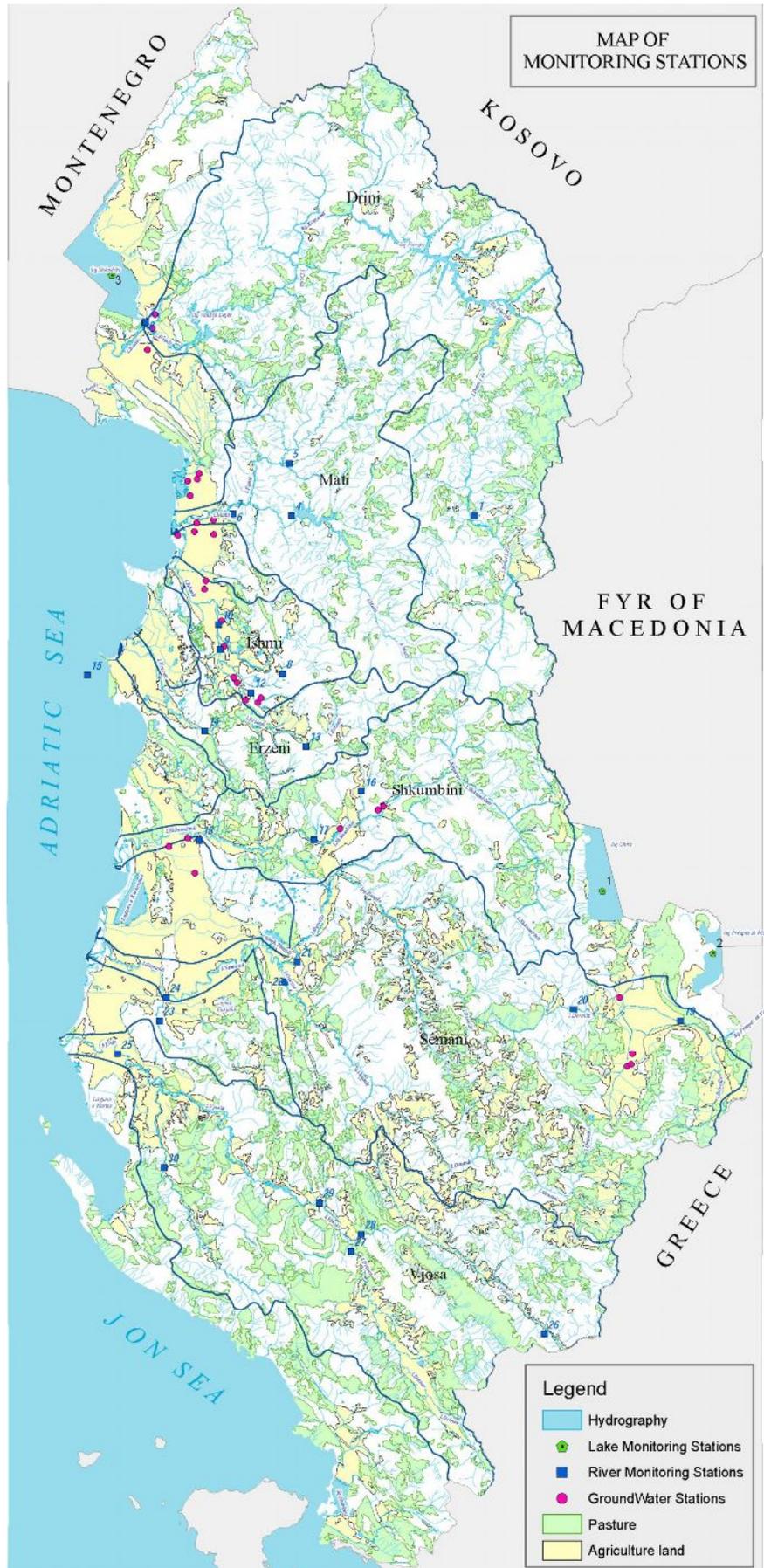
The ND requires that member states have regard to waters “affected by pollution” or which could be so affected in the absence of measures. Affected by pollution means in this context:

- in the case of surface freshwaters: more than the concentration of nitrates laid down by Directive 75/440/EEC; the limit value for nitrate according to the latter is 50 mg/l;
- in the case of surface waters generally (i.e. including estuaries, coastal waters and marine waters), whether they are eutrophic (not defined in the Directive);
- in the case of groundwater: 50 mg/l.

The evidence as to how water quality in Albania compares with these values is considered below, separately for surface waters and groundwater. It should be noted that groundwater plays a particularly important role in drinking water in Albania, with 80% of the drinking water supply coming from the main aquifers in the country.

The main evidence available is of course the monitoring data collected from the monitoring stations. The monitoring data can only be good if the monitoring network has a good coverage and is representative of the water bodies in Albania, and if the programme is sufficiently frequent and accurate. Figure 1 overleaf shows the locations of surface and ground water monitoring stations in Albania. It also shows the location of land used for agriculture and also pastureland. It can be seen that the monitoring network for groundwater is rather sparse. Furthermore (and this cannot be seen on the map), the groundwater stations tend to concentrate on the deeper aquifers which are the major sources of drinking-water, with little emphasis on shallow groundwater in agricultural areas, which are the most vulnerable to nitrate pollution.

Figure 1: Location of agricultural land in Albania and of the water quality monitoring stations.



Surface waters

The organisation responsible for monitoring surface waters is the Institute for Energy, Water and Environment, at the Polytechnic University of Tirana. Nitrate concentrations are calculated between three and six times per year at each of 30 measuring stations on **rivers** distributed throughout the country. The figures for 2007 give the following:

Highest value of NO₃: 6.9 mg/l, on the Shkumbini, at Rrogozhine

Mean value (30 stations): 1.2 mg/l

Lowest value: 0.04 mg/l (at a number of locations)

The values for 2006 appear somewhat higher, with a maximum value of 16.0 mg/l being recorded, on the river Ishem, and values around 10 mg/l being measured on a number of occasions.

Miho et al (2005)⁹ reported measuring nitrate levels in excess of the EU 'guide value' for drinking water of 25 mg/l NO₃ in downstream sections of the Shkumbini.

As far as **lakes** are concerned, water quality is monitored at the three large Albanian lakes of Shkodra (3 separate locations), Ohrid and Prespa. The waters are sampled three times per year at various depths. Estimated concentrations are all low in relation to the standard – no value greater than 0.2 mg/l NO₃ compared with the standard of 50 mg/l.

As mentioned above, the criterion in the Directive for 'affected by pollution' includes not only the chemical criterion (nitrate concentration) but also on the trophic status of waters. Any surface water body deemed to be eutrophic is therefore also regarded as polluted for the purpose of the ND, but there is no systematic monitoring of eutrophication in Albanian waters.

Groundwater

Nitrate concentrations (amongst other quality parameters) in groundwater are monitored by the Albanian Geological Survey. Samples are taken from wells in various locations, twice a year, in 7 aquifers¹⁰. The results for 2007 are summarised in the table below

Table 4: Monitored groundwater nitrate concentrations (mg/l NO₃), 2007

Aquifer	No. points	NO ₃ max	NO ₃ min
Tirana	5	22	3.2
Fushe Kuge 1	5	2	0.8
Fushe Kuge 2	4	10	0.8
Korce	4	14	1.2
Elbasan	3	4	1.2
Lushnje	1	0.4	0.4
Shkoder	4	10.8	0.8

⁹ Miho A., Cullaj A., Hasko A., Lazo P., Kupe L., Schanz F., Brandl H., Bachofen R., Baraj B.: Gjendja mjedisore e disa lumenjve të Ultësirës Adriatike Shqiptare. SCOPES program (Swiss National Science Foundation - SNSF), Tirana (In Albanian with a summary in English), 2005.

¹⁰ Samples are taken in an eighth aquifer (Lezhe), but there is no NO₃ analysis.

Source: Albanian Geological Survey

The results of the 2006 monitoring are comparable, although generally somewhat higher. The maximum concentration at Korce was 22 mg/l, and at Shkoder 17.6 mg/l.

The monitored nitrate concentrations are significantly below the limit value of 50 mg/l for groundwater, but are higher than for surface waters, however, particularly the Tirana aquifer. But the groundwater monitoring data concentrate on a small number of monitoring positions in the larger, generally deeper aquifers from which there are large-scale water abstractions. There is concern that shallower wells used by the rural population in the coastal plains which are heavily cultivated may have more elevated nitrate levels. In its 'Environmental Performance Review' in 2002 the Economic Commission for Europe (ECE) stated that 'high' levels of nitrates had been found in the groundwater in the Semani and Vjosa basins, although quantitative data were not given. Values of up to 30.4 mg/l have been measured in the Bovilla reservoir and pumped wells in the coastal plains¹¹. Sulçe et al (2006)¹² mention that in 22 water analyses of drinking water from wells in the agricultural area of Durres in the Ishmi and Erzeni river basins, 18 wells had NO₃ levels higher than 66 mg/l, i.e. in excess of the EU standard.

**Provisional conclusions (subject to further targeted monitoring):
Nitrate status of water bodies in Albania**

1. Surface water nitrate levels appear to be below or well below 50 mg/l.
2. Main deep aquifers are still below 50 mg/l, although some of these may be in the category "waters which could be affected by pollution if action is not taken".
3. There have been reported exceedances of the EU standard in shallow wells in agricultural areas in the coastal plain. The surveillance monitoring programme needs to pay special attention to facilities of this kind, where pollution may be quite local.

Key question 2: To what extent is agriculture responsible for any nitrate pollution in Albania?

Because of the method by which agricultural land was redistributed following the collapse of communism, agricultural land tenure in Albania is very fragmented. Most farms are small family holdings with an average size of little more than 1 hectare. Some key statistics of the national agriculture sector in Albania are shown in Box 1 below.

11 Tania Floqi (Polytechnic University of Tirana): Presentation "Water quality and health – Albanian case" made in Vrnjacka Banja, October 2007

12 Sulçe, S., E. Veizaj: Evaluation of potential pollution from agricultural activities at Durres region (Albania)

Box 1: Vital statistics of the agriculture sector in Albania

Total agricultural land: 697,000 ha
of which, privately owned: 563,000 ha
state owned: 134,000 ha

Number of farms: 370,000

Of the household farms:

Average size of farm: 1.2 ha

24% are in the range 0.1 – 0.5 ha,

27% are in the range 0.6 – 1.0 ha,

37.5% are in the range 1.1 – 2.0 ha,

11.5% are > 2 ha,

Many produce only for their own consumption.

Only about 40-45 % of farmers use purchased feed for livestock.

For agricultural sector as a whole

Size distribution:

82% of agricultural area occupied by farms < 3 ha

15% of agricultural area occupied by farms 3 - 30 ha

3% of agricultural area occupied by farms > 30 ha

Breeding farms

No. of breeding farms = 14,788

92% have < 10 cattle each

7.97% have 10 – 100 cattle each

0.03% have > 100 cattle each

Terrain

- Only 25% of the land area comprises lowland plain, the remainder is hilly (47%) or alpine (28%) land.
- only 43% of farm land is in the lowland area
- about 56% of the agricultural land has a gradient > 5%.

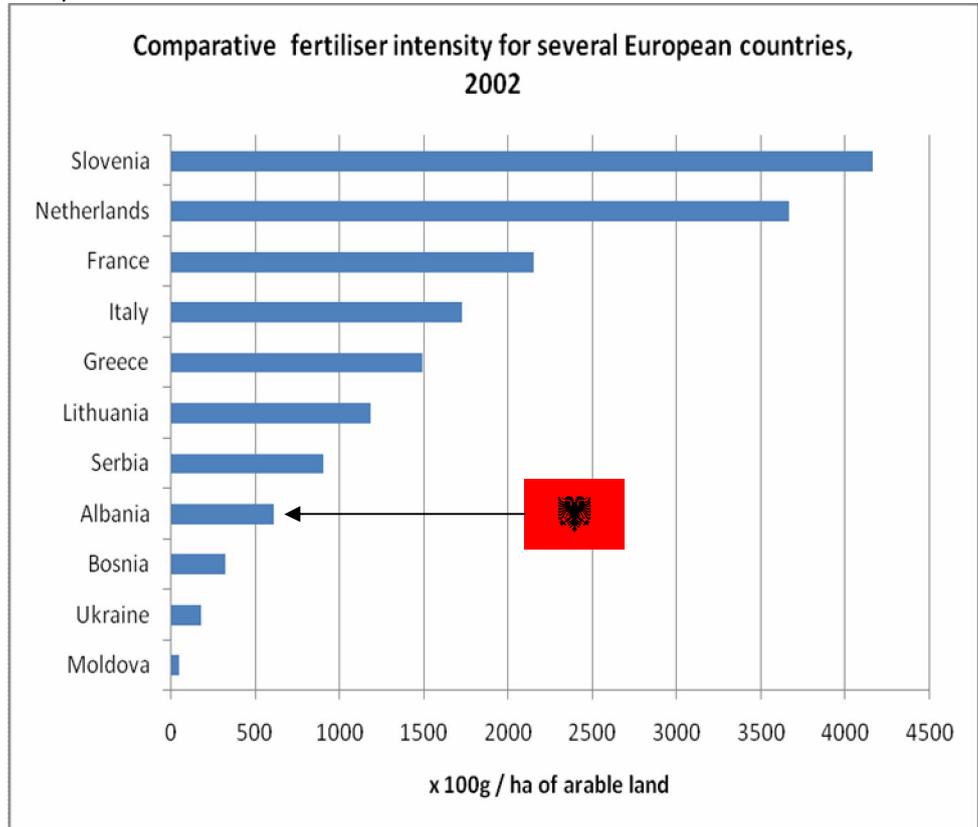
Sources: MoAFCP (2008)¹³
ADRIAFOOD project (2007)¹⁴

The figure below compares the land-intensity of the use of artificial fertilisers in Albania with a number of other European countries.

¹³ MoAFCP: Albanian agriculture in figures, 2007, Tirana, September 2008

¹⁴ ADRIAFOOD project Promotion of an inter-Adriatic space for producing quality/vegetables and livestock. Country state of the art – Fruit/vegetables and zootechnics

Figure 2: Albanian artificial fertiliser consumption compared with a number of other European countries



Source: World Bank: World Development Indicators database

In the box below a rough calculation is made of the expected gross mean nitrogen application to the land from animal manure and fertilisers.

Box 2: Estimated annual gross application of nitrogen to agricultural soil in Albania
Artificial fertiliser used in Albania

Type	Fertiliser (tons)	Percentage N (%)	N (tons)
Urea	35,794	0.45	16,107
Ammonium nitrate	44,401	0.35	15,540
Diamon Super	48,282	0.1	4,828
Total			36,475

Animal manure requiring disposal			
Livestock type	number	T N/animal/yr	tons N
Large livestock	699,000	0.04	27,960
Pigs	147,000	0.03	4,410
Sheep and goats	1,853,000	0.015	27,795
Poultry	4,712,000	0.0012	5,654
Total			65,819

Total nitrogen to be applied to agricultural soil = 102,000 tons (approximately)
 Total agricultural land area = 697,000 hectares
 Mean application rate = 102/697 T/ha = 146 kg/ha

Source: MoAFCP, figures for 2004

The mean application rate applying for present stocking and fertilisation rates, approximately 146 kg/ha, can be compared with the EU Nitrate spreading standard – a maximum of 170 kg/ha - set in the Nitrates

Directive. This means that given an efficient system for spreading soil nutrients (the standard applies on a per farm basis) this standard does not look too demanding.

At the same time, it is likely that the agricultural sector in general, and the livestock sector in particular is at least partly responsible for any exceedances of nitrates standards where these are occurring, particularly along the low-lying agricultural plains lying behind the Adriatic coast.

Key question 3: What proportion of Albanian territory should be designated a vulnerable zone

It can be seen that for the moment it is very difficult to gauge the extent of nitrate pollution in the agricultural areas of Albania. The highest nitrate concentrations are likely in the water in shallow wells in more intensively farmed areas, for example on the coastal plains on the Western side of the country. In such cases the sources of the nitrate is likely to be fairly local.

The proportion of national territory designated a vulnerable zone has been a contentious issue in the EU. The percentage designated by different member states has varied considerably (see table below), and there are several cases where the EU considers or considered the proportion too low.

Table 5: Vulnerable zones in EU-15 as a proportion of total territory

Country	Percentage territory designated VZ (%)	Subject to legal procedure by EU
Austria	100	
Belgium	24	
Denmark	100	
Finland	100	
France	44	
Germany	100	
Greece	11	
Ireland	100	
Italy	8	
Luxembourg	100	
Netherlands	100	
Portugal	1.2	
Spain	13	
Sweden	15	
United Kingdom	38	
TOTAL EU 15	45	

Source: European Commission report COM(2007)120 Final on implementation of the Nitrates Directive

Notes to table:

1. An entry of 100% in second column does not necessarily mean that the whole territory is nitrate vulnerable according to Article 3(2) of the Nitrates Directive, but merely that the country has opted, in accordance with Article 3(5) of the ND, not to identify specific nitrate vulnerable zones, but to establish and apply an action programme throughout its whole territory.
2. Green and red fills in column 3 signify respectively that there is or is not a legal infringement procedure ongoing against the member state concerned.

The proportion of territory designated ranges from 1.2% (Portugal) to (effectively) 100% for 7 of the EU-15 which have elected to treat their entire territory as being vulnerable. It should be noted that the meridional members generally designated a considerably lower proportion of their territory as nitrate vulnerable than the more northerly-lying member states.

Three out of ten Member States of the 2004 accession cohort (Malta, Slovenia and Lithuania) took a “whole territory approach” and therefore decided not to designate specific nitrate vulnerable zones, but to implement an action programme on the whole territory. The other seven designated as nitrate vulnerable zones a percentage of their territory ranging from 2.5% (Poland) to 48% (Hungary).

Pending further study it is difficult to be confident about the likely proportion of Albanian territory which will need to be designated as nitrate vulnerable. The approach taken is therefore to try to give a feeling for the range of possible costs which might be involved.

Albania has three alternative overall responses to the Nitrate Directive, as follows:

- Alternative 1: to treat the whole of the country as if it were a vulnerable zone, in accordance with Article 3(5) of the Directive;
- Alternative 2: to designate specific vulnerable zones, for which an action programme or action programmes must be established.
- Alternative 3: to declare that none of the national territory is vulnerable to nitrate pollution.

Alternative 3 can be dismissed immediately. Cases of exceedances of the EU standards have already been reported, despite the lack of systematic monitoring of shallow groundwaters to date in Albania. No other member state has successfully argued that none of its territory is vulnerable to nitrate pollution, although some states adopted this position initially¹⁵.

Alternative 1 (the 100% option), on the other hand, does not seem a good option for Albania from the present perspective. Where there is widespread nitrate throughout a member state’s territory it can represent an attractive simplification, and reduce the need for (and costs of) monitoring¹⁶. Where this is not the case this will be economically inefficient, since a lot of farms which have no harmful environmental impact (in terms of nitrates) will be obliged to take measures unnecessarily. The mountainous areas of Albania are likely to be relatively nitrate-free, and problems are only likely in the coastal agricultural areas.

It is therefore assumed that alternative 2 will apply, that is that Albania will designate a number of discrete vulnerable zones on the basis of a monitoring programme.

¹⁵ For example Ireland argued for several years that it did not have any nitrate-polluted waters for purposes of the Directive.

¹⁶ As seen above, 10 member states (of EU-25) have chosen this option.

For the purpose of the costing two alternative (conservative) scenarios will be made, namely:

Scenario 1 (high): all land areas used for agriculture will be designated as vulnerable zones,

Scenario 2 (low): 30% of all land areas used for agriculture will be designated as vulnerable zones.

Key question 4: How will small family farms be treated?

We have already seen that the agricultural sector in Albania is very fragmented, and that there are a very large number of very small farms (< 2 hectares). The number of intensive breeding farms is very low (12 units). The total number of livestock breeding units is 14788, and 92% of these have less than 10 animals¹⁷.

The question arises what assumption should be made about the treatment of such very small enterprises where they lie in designated vulnerable zones. There are objections to imposing any (or at least costly) measures on these micro-enterprises. These objections are economic, social and practical.

Requiring all farms to take measures such as installing sufficient effective storage capacity for slurry and manure to cover the time when spreading on the land is not permitted, for example, would impose very significant costs on a sector already under severe pressure in making a living from such modest resources and would also pose a major enforcement challenge given the large number of farms concerned. Furthermore a system of providing state financial support to small farmers obliged to take such measures would be expensive, also in terms of administrative costs, and it is doubtful that this would represent an effective use of taxpayers' money. It is likely that the costly containment measures required by the EU are superfluous for many of the small rural farms with few animals, which probably use the litter system rather than the more polluting slurry system.

Although the Directive does not explicitly provide an exemption of small farms from taking measures specified in action programmes, the wording of the Directive is such that for most measures member states are not prevented from setting a lower threshold farm size. The relevant requirements are:

1. Member states must establish action programmes for VZs (Art. 5(1))
2. The only rule in Annex III (which lists measures to be included in action programmes) which must apply to all farms is that dealing with the limit on the application of animal manure to land.

¹⁷ Source: Official Annual Statistical Book issued by the Ministry of Agriculture, Food and Consumer Protection, as reported in Monti, D., Silvera, F. and Mara, E.: Country state of the art: Fruit, vegetables and zootechnics – Albania. ADRIAFOOD Project co-funded by EU within Interreg III A Adriatic, 2007.

The use of phasing in the action programmes is an instrument which can be used to spread the costs over a longer period, i.e. acceding member states may propose to implement only low-cost and (virtually-)no-cost measures in the first four-year action programme, deferring more costly measures to the second programme. Such action was taken by Lithuania prior to its accession, for example, with the approval of the European Commission¹⁸.

The issue of how small farms are treated interfaces with the issue of a possible restructuring and modernisation of the agricultural sector in the future. Pressures to rationalise and consolidate the tenure of agricultural land will intensify as accession approaches. If study shows that small farms are making a significant contribution to the nitrates problem then this might increase pressures to streamline and modernise the agricultural sector.

For the purpose of the costing at present the following assumptions will be made:

- 1) Only livestock farms with more than 10 animal units¹⁹ (a.u.) will be required to take costly measures (enhanced storage capacity of manure, upgrade manure spreading and transport equipment)**
- 2) Only farms > 10 ha to be required to establish nutrient management plans**
- 3) All farms in vulnerable areas to take other measures, including respecting the limit on the per hectare manure nitrogen spread on the land.**

5.1.3 Estimated costs of legal transposition

In pursuing membership of the EU, Albania will need to transcribe a large corpus of environmental legislation, including a substantial amount of innovative legislation on water, onto its statute books. This will comprise not only the primary legislation, but also the necessary secondary legislation. This latter includes a code of good agricultural practice, which is regarded as secondary legislation since it will be legally binding for farms lying within vulnerable zones. At the same time the human resources available within

¹⁸ See short report published by the Baltic Agricultural Run-off Action Programme: Lithuanian and EU positions on the Chapter 22: "Environment", 6 April 2001.

¹⁹ A common unit of measurement for animals in a feeding operation, calculated as follows:

- Dairy cattle - number animals x 1.4
- Beef cattle - number animals x 1.0
- Hogs - number animals x 0.4
- Horses - number animals x 2.0
- Sheep - number animals x 0.1
- Poultry - number animals x 0.033

the relevant Ministries (MoEFWA, MoEFCP) for this major task are very limited.

It is recommended that a 'medium'-sized TA project be established (440 days international consultants, 440 days national consultants) to permit full transposition. It would probably be convenient to integrate this activity with another TA project in the water sector.

On this basis the additional costs of full transposition would be €800,000.

5.1.4 Estimated costs of implementation and enforcement

The estimated costs of implementing the Directive are shown in the tables below. Separate tables are presented for scenario 1 (all agricultural areas designated as VZs) and scenario 2 (30% of agricultural areas designated as VZs):

Table 6.1: Implementation costs on scenario 1

Cost type	Capital / one-off costs ²⁰ (€'000)	Operating / recurrent costs (€'000/y)	Remarks
Additional personnel: 4 persons		58	Includes one additional person at MoEFWA, one at MoAFCP and two (persons equivalent) at the competent inspectorate. Includes social costs and employment related costs: office space, heating, normal equipment, reporting, overheads.
Technical assistance	1,600		A TA project will provide support to the competent authorities in the main activities in the first cycle
Reporting to European Commission		10	
Awareness-raising, training and participation	500		About the nitrate pollution from farms, about measures in action programmes, about codes of good agricultural practice
Implementation of action programmes	13,155	616	These are measures to be taken by farmers, related to the development of a nutrient management plan and the enhancement of manure and slurry storage and handling

²⁰ All costs are estimated in constant 2008 prices.

			infrastructure.
Total	15,255	683	

Table 6.2: Implementation costs on scenario 2

Cost type	Capital / one-off costs ²¹ (€'000)	Operating / recurrent costs (€'000/y)	Remarks
Additional personnel: 4 persons		43	Includes one additional person at MoEFWA, one at MoAFCP and one (person equivalent) at the competent inspectorate. Includes social costs and employment related costs: office space, heating, normal equipment, reporting, overheads.
Technical assistance	1,600		A TA project will provide support to the competent authorities in the main activities in the first cycle.
Reporting to European Commission		10	
Awareness-raising, training and participation	350		About the nitrate pollution from farms, about measures in action programmes, about codes of good agricultural practice
Implementation of action programmes	3,947	185	These are measures to be taken by farmers, related to the development of a nutrient management plan and the enhancement of manure and slurry storage and handling infrastructure.
Total	5,897	237	

The above tables only include non-zero costs. There are a number of actions listed in table 2 and section 4.4 which do not give rise to costs attributable to the Nitrates Directive. These include:

²¹ All costs are estimated in constant 2008 prices.

- hardware and software for databases, GIS, graphical presentations, etc. The provision made under the WFD for these materials, in the RBCs and in central governments, is sufficient;
- provision for extra human resources in the RNCs for activities related to the Nitrates Directive'
- equipment, transport, personnel and laboratory analysis costs related to the necessary monitoring

These costs have been included in the costs estimated for the Water Framework Directive Implementation Plan

Total implementation costs are estimated at one-off costs of €15.3 million and recurrent costs of €683,000 per year (scenario 1), or one-off costs of €5.9 and recurrent costs of €237,000 (scenario 2).

The sectors on which these costs fall in the first place are given in the following table:

Table 7: Sectors on which scenario 1 costs fall in the first instance

Sector	Capital / one-off costs (€'000)		Operating / recurrent costs (€'000)		Remarks
	Scen. 1	Scen. 2	Scen. 1	Scen. 2	
Central government	2,100	1,950	68	53	
Farms	13,155	3,947	616	185	The farms concerned will be larger farms situated in VZs

The central government one-off costs relate very largely to the cost of providing the necessary technical assistance, with smaller amounts to cover the cost of awareness-raising, training and participation.

The recurrent costs attributable to central government relate to the need for an extra person (or full-time person-equivalent) in each of the environmental and agriculture ministries to look after the Nitrate Directive-related activities, and additional inspector capacity for enforcement of the programmes of measures.

5.2 Financing Strategy

A distinction is made between:

- the one-off costs falling in the first instance on central government;
- the recurrent costs falling in the first instance on central government;
- the costs falling on farmers.

5.2.1 One-off costs falling in the first instance on central government

Given that a tight rein is likely to be maintained on government spending in the coming years, the government should seek to secure grant funding to the maximum possible degree to defray the one-off and investment costs associated with transposing the Directive into national legislation and implementing it. This of course includes not only technical assistance projects and training, but also at least a part of the costs of the awareness-building, training and participation of the farming community. Some of the costs of this item should be bundled up with the TA project to ensure that it can also be covered by grant finance. This is normally permissible so long as the TA cost element predominates.

On this basis, Albania might apply for grant funding of, say, €1,850,000 leaving the balance (€250,000 on scenario 1, €100,000 on scenario 2) to be funded from the state budget

This funding gap could be filled by a grant from the EU Instrument for Pre-accession Assistance or from another bilateral or multilateral donor. These two sources are considered separately below.

Instrument for Pre-accession Assistance (IPA)

The IPA was introduced in January 2007, and replaced various earlier EU programmes and financial instruments for candidate countries and potential candidate countries, such as PHARE, ISPA, SAPARD and CARDS.

The IPA is made up of five different components:

- I. Assistance for transition and institution building;
- II. Cross-border cooperation (with EU Member States and other countries eligible for IPA);
- III. Regional development (transport, environment and economic development);
- IV. Human resources (strengthening human capital and combating exclusion);
- V. Rural development.

Component I falls under the responsibility of the Commission's Directorate-General for Enlargement, which is also responsible for the overall co-ordination of pre-accession assistance. It involves institution building measures and associated investment, as well as transition and stabilisation measures where necessary. It is delivered through annual national and multi-beneficiary programmes.

Component II supports cross-border cooperation at borders between candidate/potential candidate countries and between them and the EU countries. DG Enlargement and the Commission's Directorate-General for Regional Development are jointly responsible for the implementation of component II. A joint application with the neighbouring country is required.

'Potential candidate countries' such as Albania are only entitled to components I and II above.

The EU makes multi-year indicative allocations according to the IPA Multi-annual Financial Framework MAFF. The figures for Albania are as follows:

Table 8: Indicative medium term allocations of IPA to Albania

Year	Component I (€ million)	Component II (€ million)	Total (€ million)
2007	54.3	6.7	61.0
2008	61.1	9.6	70.7
2009	70.9	10.3	81.2
2010	82.7	10.5	92.3
2011	?	?	98.7

The sums available in the future are likely to go on climbing slowly in real terms after 2011 until the date of accession. When Albania becomes a full candidate country there will also be an increase in the indicative allocations.

These amounts of course cover aid in all sectors, not just the environmental or water sector. Projects are classified as political, economic and membership obligations. The division between these groups in the allocations for 2007 to 2009 was 30-35%, 20-25% and 40-50% respectively. Assistance in implementing the Nitrates Directive would be classified as a membership obligation. The grants allocated to date under the IPA include grant funding of €24 million to support the construction and rehabilitation of water supply and wastewater infrastructure in Shkodër, Velipojë, Shëngjin and Golem-Kavajë.

But it should be noted that the 2007 allocation is currently awaiting final EU approval, approval for the 2008 allocation is somewhat further off, and the allocation for 2009 is currently still being programmed. New projects will not be eligible before IPA 2010, which will not begin disbursement before 2011.

When Albania actually joins the EU it will be able to apply for funding under the Regional Development and Cohesion Funds. It is not known at present how much would be available, but on the basis of the experience of the 2004 accession countries and of Romania and Bulgaria, amounts substantially exceeding pre-accession funding are likely to be available to help bring Albania's infrastructure up to EU standards.

Starting with the 2008 IPA allocation, Albania is expected to provide co-funding – from 10% for TA projects up to 25% for investment projects. However in the former case this co-funding may be 'in kind' rather than necessarily as a monetary contribution. Since this may include the salaries of participating public service counterparts, and since such participation is in any case desirable indeed necessary in a TA project, Albanian co-funding costs are assumed to be nil.

Other bilateral and multilateral aid

According to the database of aid projects maintained by the foreign donor coordination unit within the Council of Ministers, non-EU donors have

provided Albania with some €2600 million in aid over the last 9 years. Of this total, some €280 million was specifically for water sector projects (mainly water supply and sanitation), of which €100 million in grants and €180 million in loans, and a further €86 million (allocated over the last 4 years, of which of which €65 million in grants) was for other projects in the environmental sector. The main donor governments and institutions during this period were the EU, Germany, Italy, Austria, Netherlands. The government should try to ensure that as much foreign aid as possible is directed towards assisting Albania to meet its accession obligations.

5.2.2 Recurrent costs falling in the first instance on central government

These costs, amounting to nearly €68,000 (scenario 1) or €53,000 (scenario 2) per year, will not qualify for grant aid, and will need to be covered by provisions in the state budget. Most of the amount is increased salary costs. There is a tension between the apparent budgetary needs related to the provision for new functions arising out of the provisions of European legislation and the attempts to streamline the civil service and reduce its total size. For example the amount set aside for salaries in the medium-term national budget for the Ministry of Environment, Forestry and Water Administration just for the two directorates Planning, Management and Administration in the indicative budgets for 2009-2011 compared with the 2008 budget are as follows:

*Table 9: Allowances made in the medium-term national budget for growth in salaries for the coming three years in the two environmental directorates of MoEFWA**

	Budget	Provision in Mid-Term Budget 2009-2011 for salaries ('000 lek)		
		2009	2010	2011
Planning, Management and Administration*	2008 54,000	52,100	53,500	55,000
Water Administration*	18,000	18,500	19,000	20,000
	72,000	70,600	72,500	75,000
Yearly increment (%)		-1.9%	2.7%	3.4%

Source: MoEFWA

* These two departments only were included as they are the departments which correspond most closely to the EU environmental chapter.

As can be seen in the above table, the budget for salaries reduces from 2008/9, and the increases from 2009/10 and from 2010/11 barely keep pace with inflation.

The purpose of the present document is of course only to identify the resource requirements needed to implement the Water Framework Directive, not to explain how exactly these needs are squared with Albania's goal of streamlining its civil service. However it is assumed that a

part of the increased salary costs can be met by transferring suitable personnel from existing functions which are no longer necessary or redundancies due to improved productivity into the new positions, or alternatively by making savings in the existing payroll.

5.2.3 Costs falling on farmers

As explained earlier, the estimates of the costs falling on farmers are necessarily very uncertain at present, depending on a number of assumptions whose accuracy can only be tested and improved when data have been collected on the extent of pollution by nutrients in Albania, and by the river basin studies of the pressures on the environment due to farming and other activities which emit nutrients.

In principle these costs would normally have to be met by the farmers themselves. Depending on where the size threshold for the taking of measures is set, some farmers might have difficulty in absorbing any significant additional costs at all. Given the very large proportion of the Albanian workforce engaged in agriculture, this is an economically and socially sensitive issue. There would be no reason why public subsidies should not be provided to farms deemed to be facing particular difficulty. It is anticipated that the action programmes will only be implemented after accession, and some of the instruments of EU regional policy²² are designed to provide support for farmers and for rural development in areas facing structural difficulties; some funding might be available from this source.

5.3 Benefits

Benefits of the Directive requirements derive from reducing nitrate pollution from agriculture, especially for:

Biodiversity, species and habitat conservation: Excessive nitrate concentrations have caused significant harm to the environment through eutrophication, at least in the northern part the Adriatic Sea.

Nitrates stimulate abnormal growth of algae, resulting in algal blooms which produce a bad smelling surface foam. Decomposition of dead algae reduces the water's dissolved oxygen content, adversely affecting fish and other aquatic forms. Without wider controls on agriculture, eutrophication and algal blooms may increase.

Although it is difficult to assess in monetary terms the benefit of preventing damages to biodiversity and habitat, the adoption of Action Programme²³

²² For example the European Agriculture Guidance and Guarantee Fund.

²³ As an example of a country that has implemented the Directive very well is Denmark. The National Nitrogen Management Programme was initiated in 1987. This programme simultaneously provided precise advice to farmers for:
Accurate and moderate fertilisation

measures imposing controls on fertiliser and manure applications will help to protect the aquatic environment from undesirable disturbances arising from nutrient inputs bringing significant benefits to the ecosystems.

Tourism at local level: Currently many rivers and surface waters suffer from eutrophication, leading to fish loss (and hence reductions in fishing benefit, whether for pleasure, for own consumption or for sale), and a reduction in their possible use for bathing.

There may be benefits for bathing water compliance because restrictions on manures and slurries in some areas of Albania will help reduce microbiological contamination of bathing waters.

This should improve the amenity value of waterways bringing economic benefits through tourism, and improve the quality of life of affected populations.

As for coastal waters, without wider controls increasing instances of disfigured and polluted beaches would be expected to damage tourism and prevent its future expansion. Foreign tourists could be expected to switch the destination of their trips in response to instances of coastal pollution, and the overall effect on individual resorts, especially the smaller ones with few other attractions, could be severe.

Farmers: there may be some offsetting savings to farmers arising from more efficient use of manures and less use of fertiliser.

Shellfish Industry & consumer confidence: the shellfish industry is significant to a number of local economies (720 tonnes of shellfish were landed in Albania in 2004 according to MoEFWA statistics). Two important obstacles to future development potential are water quality and low consumer confidence in the products due to public perception of the risk of food poisoning from shellfish.

Nitrate loss from agriculture is not the only factor which may influence the scale of toxic algal blooms (actually the shellfish industry's main pollution concern is sewage discharges), but some toxic algal blooms render shellfish inedible and are also a serious cause for concern.

Production of bivalve molluscs may be directly affected in the future by increased incidents of toxic algal blooms in shellfish waters. However, as discussed above, nitrate loss from agriculture is not the only factor which may influence the scale of toxic algal blooms. It is therefore very difficult to

Mandatory soil winter cover

Balancing of livestock with available manure storage and spread able land

A strict State control system incl. annual N budget and surplus for each farm, and regular controls of practices at field level (several thousands per year)

This programme has resulted in a reduction of 28% of Nitrogen losses from agriculture to Danish waters and of 50% in the N surplus at farm level. In purely agricultural watersheds, a 20% reduction of N load has been achieved (delayed effects due to retention in soils and ground waters), and eutrophication of coastal waters is beginning to decrease.

quantify the proportion of shellfish revenue which would be protected as a result of the new requirements.

6 ANNEXES

6.1 ANNEX I: Table of Concordance

Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources

The provisions of this Directive haven't been transposed in the Albanian Legislation (some of the definitions foreseen in the directive: livestock and fertilizers are provided by Law "On veterinary" and Law "On Plant Protection", but they are related to Agriculture and Animal Health). In the Draft law amending Law No. 8093, dated 21.3.1996 "On Water Sources", Article 26/2 state: *"within 2 years from entry into force of the Regulation adopted in accordance to the requirements of Article 1(new draft), the National Council of Water, with the common proposal of the Minister(of Environment) and Minister of Agriculture, Food and Consumer protection, shall endorse detailed rules related to the use of fertilisers within the non-protected areas, in order to protect from pollution the water that is drainage in this area"*.

The draft Law on Water Resources (prepared by the ELPA Project) has also been considered in this assessment – other than a definition of groundwater that appears in the draft LWR, the Nitrates Directive has not been transposed. However, the Draft LWR Article 26C Pollution from Agriculture Sources creates the legal basis for transposing the directive: The National Water Council to publish a Regulation requiring all River Basin Councils to identify waters that are, or which could be affected by pollution from agricultural sources and to designate 'vulnerable zones'. In addition the NWC to adopt rules concerning the use of fertilizers in vulnerable zones.

In consideration to this requirement, is necessary to draft a regulation (normative act) adopting Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources.

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 1	[Objective]	Draft LWR Art 26C provides the legal basis for legislation on nitrates pollution. Other than this, none of the substantive provisions of the Directive have been transposed.			
Art. 2	Definitions: a) groundwater	Draft LWR Art 2.1.a	Corresponds		
	b) freshwater				
	c) nitrogen compound				
	d) livestock				
	e) fertilizer				
	f) chemical fertilizer				
	g) livestock manure				
	h) land application				

²⁴ If draft legislation, please specify the status of the draft legislation.

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
	i) eutrophication				
	j) pollution				
	k) vulnerable zone				
Art. 3.1	In accordance with the criteria in Annex I, MS must identify those waters affected by pollution or which could be affected by pollution if action is not taken pursuant to Art. 5				
Art. 3.2	All known areas of land within the MS territory draining into waters identified in accordance with Art. 3.1 & which contribute to pollution must be designated as vulnerable zones [and inform Comm'n].				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 3.3	<p>If waters identified in accordance with Art. 3(1) are affected by pollution from waters originating from another MS draining directly or indirectly into the identified waters, the affected MS may notify other MS [& the Commission] of the relevant facts.</p> <p>The MS concerned must organise (where appropriate with the Commission) the necessary joint efforts to identify the sources of pollution & the measures to be taken to protect the affected waters in accordance with the Directive.</p>				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 3.4	MS must review &, if necessary, revise or add to the designation of vulnerable zones as appropriate at least once every 4 years to take account of any changes & factors which might have been unforeseen at the time of the previous designation.				
	[Commission to be notified of any revisions or additions to the designations within 6 months.]				
Art. 3.5	[If MS establish & apply action programmes (as referred to in Art. 5) in accordance with this Directive throughout their national territory, the obligation to identify specific vulnerable zones does not apply.]				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 4.1	<p>In order to provide a general level of protection for all waters against pollution, MS must</p> <p>(a) establish a code or codes of good agricultural practice, to be implemented by farmers on a voluntary basis, containing as a minimum the provisions mentioned in Annex II A.</p>				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
	(b) Where necessary, they must also set up a programme to promote the application of the code(s) of good agricultural practice, to include the provision of information & training for farmers.				
Art. 4.2	[Details of the code(s) must be submitted to the Commission.]				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 5.1	Action programmes must be established in respect of designated vulnerable zones (within one year of each additional/new designation referred to in Art. 3.4).				
Art 5.2	[Such programmes may relate to all vulnerable zones within the MS territory or different programmes established for different zones or parts of zones, as appropriate.]				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 5.3	<p>Action programmes must take into account:</p> <ul style="list-style-type: none"> (a) the available scientific & technical data (mainly relating to respective nitrogen contributions originating from agricultural & other sources) & (b) the environmental conditions in the relevant regions of the MS concerned. 				
Art. 5.4	<p>Action programmes must be implemented within 4 years of their establishment.</p>				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 5.4	<p>The action programmes shall consist of the following mandatory measures:</p> <ul style="list-style-type: none"> (a) those measures listed in Annex III; (b) measures contained in the code(s) of good agricultural practice established in accordance with Art. 4 (<u>except</u> any of those measures which have been superseded by the measures in Annex III). 				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 5.5	<p>Within the framework of the action programmes, such additional measures or reinforced actions as the MS consider necessary must be taken if (at the outset or in the light of experience gained in implementing the action programmes) it becomes apparent that the measures referred to in Art. 5.4 will not be sufficient to achieve the objectives of Art. 1.</p> <p>In selecting these measures or actions, their effectiveness & cost shall be taken into account relative to other possible preventive measures.</p>				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 5.6	<p>Suitable monitoring programmes must be drawn up & implemented to assess the effectiveness of the action programmes.</p> <p>Those MS applying Art. 5 throughout their national territory must monitor the nitrate content of waters (both surface water & groundwater) at selected measuring points in order to establish the extent of nitrate pollution of the waters from agricultural sources.</p>				
Art. 5.7	<p>Action programmes (including any additional measures taken pursuant to Art. 5.5) must be reviewed &, if necessary, revised at least once every 4 years.</p>				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
	[The Commission must be informed of any changes to the action programme(s).]				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 6.1 (a) & (b)	<p>For the purpose of designating & revising the designation of vulnerable zones, the nitrate concentration in freshwaters must be monitored over a period of one year at:</p> <ul style="list-style-type: none"> i) surface water sampling stations (Art. 5(4) of Directive 75/440/EEC) &/or at other sampling stations which are representative of MS surface waters, on at least a monthly basis & more frequently during flood periods ii) sampling stations which are representative of MS groundwater aquifers, at regular intervals & taking into account the provisions of Directive 80/778/EEC 				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 6.1(c)	The eutrophic state of fresh surface waters, estuarial & coastal waters must be reviewed every 4 years.				
Art. 6.2	In carrying out the monitoring required by Art. 6.1, MS must use the reference methods of measurement set out in Annex IV.				
Art 7	[Guidelines for monitoring may be drawn up]				
Art 8	[adaptation of Annexes]				
Art 9	[Committee]				
Art. 10	[A report containing the information outlined in Annex V must be submitted to the Commission every 4 years, within 6 months of the end of the period to which it relates.]				
Art 11	[Comm'n to produce reports]				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Art. 12.1	[MS must inform the Commission that they have brought into force the necessary laws, regulations & administrative provisions to comply with this Directive & provide the Commission with the texts of the relevant provisions of national law.]				
Art. 12.2	[National legislation must contain a reference to this Directive or be accompanied by such a reference on official publication.]				
Annex I	Criteria for identifying waters referred to in Art. 3(1)				
Annex II	Code(s) of good agricultural practice				

Article	EU Obligation	National legislation (including draft legislation) (give text of relevant law or regulation & no. of article) ²⁴	Corresponds/corresponds in part/is lacking/is in conflict	Identification of changes needed in Albanian law	Responsible institution(s)
Annex III	Measures to be included in action programmes as referred to in Art. 5(4)(a)				
Annex IV	Reference methods of measurement				
Annex V	[Information to be contained in reports to the Commission (Art. 10)]				

6.2 ANNEX II: Action List with Costs

Intervention	Responsible Institution	Capital costs and one-off expenditures €			Sources of financing	Operating / annual costs €	Year of Implementation (relative)					
		Equipment, engineering	TA projects and other software	Total capital cost			0	1	2	3	4	5 or later
1. Institutional strengthening												
Appoint competent authorities. Employ and equip additional personnel at the MoEFWA and MoAFCP	MoEFWM, MoAFCP	No further equipment needed		0	state budget	28,800	v					
Laboratory refurbishment, upgrading, strengthening of quality control		No further costs, included in WFD		0	n/a	0						
TA project to help CA to get established and undertake initial activities and first round of action programmes	CG, MoEFWM, RBCs		1,600,000	1,600,000	International donors	0						
2. Preparatory work and formulation of action programmes												
Identify waters that are, or which could be, affected by nitrate pollution or eutrophication		No further costs for these activities			n/a	No further costs for these activities						
Designate vulnerable zones		No further costs for these activities			n/a	No further costs for these activities						
Awareness-raising, dissemination of information, consultation, public participation	MoEFWM, MoAFCP		Scenario 1: 500,000 Scenario 2: 350,000	500,000 350,000	state budget, International donors	0						
3. Monitoring, data handling and reporting												
Establish monitoring programmes		No further costs for these activities			0	n/a	0					
Reporting to Commission	MoEFWM			0	state budget	10,000						
4. Implementation of action programmes and enforcement												
Implement action programmes		Scenario. 1 - 13,155,000 Scenario.2 - 3,947,500		13,155,000 3,947,500		616,000 185,000						
Enforcement: appoint 1 additional full-time inspector	MoAFCP				state budget	S1: 28,800 S2: 14,400						
TOTAL		Scenario 1 - 13,155,000 Scenario 2 - 3,947,500	2,100,000 1,950,000	15,255,000 5,897,500		682,800 237,400						

6.3 ANNEX III: Implementation Costing Sheet

No.	Intervention / activity & project	Requirements		Unit costs		Capital cost (€)	Operat. costs (€/year)	Remarks
		No. Units	Type/description	Unit	€/unit			
1	Institutional Strengthening							
1.1	Appoint competent authorities. Employ additional personnel at the MoEFWA: - Water Resources Spec. (1) - Water Quality Expert (2)	1	Full-time person at MoEFWA - Senior Expert (SE)	/month	1,200		28,800	Including social costs, office space, basic equipment, heating lighting, reporting and other overheads
		1	Full-time person at MoAFCP - Senior Expert (SE)	/month	1,200			
1.2	Procurement of necessary hardware and software	1	Implementation of the WD will give rise to a need for river basin modelling, GIS modelling, the preparation of good quality graphical representations, etc. for the planning function (i.e. at MoEFWA).				0	No additional costs necessary. Basic office equipment is already included in the costs at 1.1. The provision already included under the Water Framework Directive for the more sophisticated hardware and software necessary to implement the ND will suffice for this application also.
1.3	Laboratory refurbishment, upgrading, strengthening of quality control						0	No additional costs necessary. The necessary upgrading and institutional strengthening of laboratories has already been covered in the costing for the Water Framework Directive..
1.4	TA project to help CA to get established and undertake initial activities and first round of action programmes	1	Large TA project (LTA)	/piece	1,600,000	1,600,000	0	See standard cost database.
2	Preparatory work and formulation of action programmes							
2.1	Identify waters that are, or which could be, affected by nitrate pollution or eutrophication					0	0	The components of this activity involve: 1. determining the national monitoring programme (nitrates, trophic status) needed; 2. carrying out the necessary monitoring; 3. collecting data on physical and environmental characteristics of the waters and land; 4. assessing which waters are threatened. Actions 1, 3 and 4 will be carried out by regular personnel of the CA, with the support of the TA project referred to, and the costs of which are already included in activity no. 1.4 above. Action 2 is included in activity 4 below. So, no additional costs under this heading
2.2	Designate vulnerable zones	1						Own personnel supported by TA project (activity 1.4), no additional costs . It is assumed that Albania will opt for the discrete VZ approach given that the (limited) data available to date suggest that nitrate pollution (from whatever sources) does not appear to present a

								threat to most Albanian waters at present, particularly surface waters.
2.3	Awareness-raising, dissemination of information, consultation, public participation					Scenario 1: 500,000 Scenario 2: 350,000	0	Farmers and their representatives will need to be consulted in connection both with the code of good agricultural practice and the programmes of measures. In addition, once these documents have been finalised, a major campaign will be needed to educate farmers on the nitrate issue and their role in controlling nitrate emissions. Rough estimated budget for preparation of informational and promotional materials, organising meetings and seminars with farmers and their representatives, demonstrations, etc.
3	Monitoring, data handling and reporting							
3.1	Establish monitoring programmes to: a) assess the nitrates in surface waters and ground waters, b) review eutrophic state of surface freshwaters, estuary and coastal waters, and c) assess the effectiveness of action programmes Include in database					0	0	This activity is included here <i>pro memoria</i> , but the costs have already been included in the monitoring activity costed for the WFD (see Annex III of the WFD DSIP, activity group 3). No further costs need to be included here.
3.2	Reporting to Commission					0	10.000	The figure shown is a rough provision of the additional costs likely to fall on the competent authorities as a result of reporting requirements.
4	Implementation of action programmes and enforcement							
4.1	Implement action programmes	<p>Measures to be determined in the action programmes will be taken by farmers in the VZs. Many of the measures will be low- or no-cost. The main measures which could involve significant costs are:</p> <ul style="list-style-type: none"> • improvement in manure storage on farms; • manure spreading and transportation • Implementation of water protection measures in agricultural areas • implement a nutrient management plan <p>Action programmes are likely to prescribe many other measures involving good practice, but these are assumed to involve negligible cost. Generally all farms will be required to take the measures prescribed in the action programmes, except that, as mentioned in section 5.1.2 (KQ4), the measures described above will only be taken by livestock farms with > 10 animal units or all farms > 10 ha. Estimated no. of livestock breeding farms>10 a.u. = 8% x 15,000 = 1200 farms Estimated no. of all farms (livestock + arable) > 10 ha = 2150 (of which 400 > 30 ha)</p> <p>2 alternative scenarios are considered: S1: all areas with agricultural use will be designated as VZs S2: 30% of areas with agricultural use will be designated as VZs</p> <p>Note that where two figures are given in the cells below, the upper figure refers to scenario 1 and the lower to scenario 2.</p>						
4.1.1	Improved manure storage on farms	1,200 360	Expand storage capacity so that sufficient space to cover period when spreading prohibited	/livestock farm (> 10 a.u.)	10,000	12,000,000 3,600,000	600,000 180,000	Unit cost based on experience in other accession countries for farms of this size. O&M 5%
4.1.2	Manure spreading and transportation	16 5		/large intensive livestock-	5000	80,000 25,000	16,000 5,000	In general farms are expected to have sufficient space locally so that further costs for transportation not necessary. Assume

				breeding farm				that only the 16 large intensive livestock rearing enterprises will need to transport their waste to suitable land. Prices for the manure transporting and spreading equipment are very different depending on the quality and type of machine. As a rough estimate the investment needed for the acquisition of manure spreaders and transportation means could be approximately €5,000 / farm. The annual costs to cover fuel, insurance and other O&M are estimated to be 20% of capital costs
4.1.3	Implement a nutrient management plan	2150 645		/farm > 10 ha	500	1,075.000 322,500	0 0	There are no great costs associated with this measure, indeed it could result in savings as it should result in a more efficient use of fertilisers and manure. Only cost assumed is €500 per farm
4.2	Enforcement	2 1	Full-time person(s) at CA - Senior Expert (SE)	/month	1,200		28,800 14,400	Including social costs, office space, basic equipment, heating lighting, reporting and other overheads

6.4 ANNEX IV: Specific Issues for the Implementation of the Nitrate Directive in Albania

In principle, thanks to its largely undeveloped farming systems Albania should not face those types of implementation difficulties with the Nitrate Directive that some Western European countries (e.g. Belgium and the Netherlands) have met. Nevertheless there are still some specific issues that it will inevitably face.

Polluted Wells Water

A very large portion of the rural population in Albania draws its water from private wells. Often poor in quality, the wells water is thus a critical public health issue. The general protection of groundwater from agricultural contamination given by Nitrate Directive should check further decline; however this may not necessarily lead to major improvements in the short term.

One reason for this is because the problem of well water contamination is mostly prevalent at small farms. These farms may not be brought within the ambit of the Nitrate Directive, either because it is not practical to do so or because they do not pose a wider public risk of pollution (i.e. beyond the confines of their own estates). Moreover, farming may not be the only, or indeed the main, source of any contamination. Some comes from non-agricultural sources, such as outdoor toilets and septic tanks.

The solution to the wells water problem should be the closure of highly polluted wells and the connecting of rural populations to piped water supplies. The accomplishment of such infrastructural development can take a long time. In the meantime, rural households should be advised on appropriate farming practices and the relative location of wells, septic tanks and kitchen gardens to minimize the risks posed to themselves and their neighbours.

Impact of the Nitrate Directive on Farms

In general, the private costs and benefits of implementing the Nitrate Directive favour the larger farms because the private costs are largely scale-neutral. This means that costs hit disproportionately the finances of the smaller farm, squeezing out the smaller farmers.

At the same time, the private benefits of the Nitrate Directive (savings on fertiliser costs) rise with the size of the farm. The effect of the imposition of the Directive, it is feared, will tend to squeeze out the smaller farms.

Smaller farmers are unlikely to be able to fund the costs of waste-storage facilities from their own resources, but are unlikely to be favoured by those dispensing public funds for this purpose. For example, financial assistance provided under international aid programmes, including EU, favour larger and expanding farmers with future production perspectives and competitive potential within the European market. Indeed, a number of funding programmes specifically link productive and protective investment together.

In principle the impact of the Nitrate Directive on farms in Albania might follow the same pattern as described above, namely:

- a) the majority of the smaller farmers will never acquire proper manure storage facilities and, due to their uncertain future, they will not be targeted to comply with the Nitrate Directive
- b) among the medium-sized farms, the implementation of the Directive will contribute to the process of separating out those with the necessary means to modernize and expand and those that will be marginalized
- c) the larger, more viable and market-oriented farms will be favoured to receive financial assistance to meet the requirements of the Nitrate Directive

However this is not inevitable. It is common opinion that most of the farms, particularly those still using litter systems, pose low pollution risks. In general it would be advisable to carry out a risk assessment survey to confirm to what extent the animal and other wastes of small farms do pose wider environmental risks. Depending on the results it is probably the case that most traditional small livestock farms could be exempted from the Nitrate Directive.