

# **Legal Implications of Introducing Economic Instruments in the Field of European and Dutch Water Management**

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## Foreword

Finally, after three different studies I can finally say that I have found a study and a study field which interests me in all their aspects. Therefore, I would first like to thank my mum, Tineke Jolink, who has financially made it possible for me to continue studying, and who has always supported my choices.

Here in front of you is my master's thesis which I have written for the course Sustainable Development and International and Environmental Law at the University of Utrecht. This course has been really interesting as it aimed at connecting policy making with law making. This thesis shows that there is still a huge gap between the two. Nevertheless, I can say that I have learned a lot, also thanks to my professor, Marleen van Rijswick, who has been really helpful thanks to her excellent knowledge of all facets of water law. Also, my second supervisor, Andrea Keessen, has greatly assisted me at points when I became stuck in this research.

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## Summary

The interest in the use of economic instruments in the field of water policy can be attributed to the introduction of the European Water Framework Directive. This Directive is the first European Directive which explicitly points to the use of economic instruments in the field of water policy. Research has shown that, in theory, economic instruments are very efficient and potentially lead to the sustainable use of the environment. Therefore, the Netherlands is looking into the possibility of introducing more economic instruments in its current water policy. The Directorate-General for Water in the Netherlands has pointed to a number of economic instruments that it would like to see being investigated in more detail. This is done in this report.

Although it appears that economic instruments are efficient in an economic sense, it is also necessary that the economic instruments fit within the current legal framework of European legislation and principles and within Dutch law. There are many laws, rules and obligations which have to be taken into account before an economic instrument can be introduced. Therefore, the main research question in this paper is: *What are the legal implications and possibilities of introducing economic instruments in the field of water management in the Netherlands?*

Since the main water quality-related problems experienced in the Netherlands are caused by the agricultural sector, due to the use of pesticides, fertilizers and manure, the economic instruments discussed in this report focus on reducing water pollution from the agricultural sector. However, at the political level, the agricultural sector is a sensitive topic, which has led to the adoption of the so-called Van der Vlies Resolution, in which it is laid down that the agricultural sector shall not be burdened with an increase in costs when measures have to be taken for the implementation of the Water Framework Directive. This implies that also economic instruments which may be used in the future, cannot not lead to an increase in costs for farmers. This obviously complicates the search for an appropriate economic instrument.

One solution is to look into economic instruments which will compensate farmers for taking environmentally friendly measures, which are known as eco-system services. Services, such as the construction of wet buffer strips, not only benefit water quality, but also increase water storage facilities and create ecological habitat. By using compensation payments to realise the performance of eco-system services, farmers will not face an increase in their costs when taking measures to improve water quality. This research has shown that such instruments do fit within the existing legal framework. However, there are several conditions which have to be taken into account to avoid breaching European law. European laws contain obligations which have to be adhered to by the Member States. When these laws require farmers to take certain steps, Member States are not allowed to financially support farmers in adopting such a course of action, as it may be considered as illegal state aid by the European Commission. Farmers can only receive compensation for any additional measures they take over and above what they are obliged to do under the law. Performing eco-system services, such as creating wet buffer strips, are such additional measures.

Furthermore, this research shows that the economic instrument of introducing levies on non-point sources of pollution, such as the agricultural sector, would be in line with European obligations. However, since there is no explicit obligation to do so in the law, many Member States are reluctant to introduce such a levy, as it will inevitably increase costs for farmers. Although European law does not prescribe the use of levies, it does require permits for discharges into water caused by non-point sources. It may thus be possible that the agricultural sector requires permits for the water pollution they cause. A possible solution to the increase in costs for farmers due to a levy would be to invest the yields from the levies in the agricultural sector, e.g. using the yields to compensate farmers for performing eco-system services. With this construction the costs to the agricultural sector will, on average, not increase.

Lastly, the introduction of the economic instrument of tradable water (pollution) rights is discussed. This economic instrument is legally feasible; however, there are strict obligations laid down in European water-related Directives which do have to be respected. The European

Court of Justice neither allows emission limits nor quality objectives, as laid down in the Directives, to be breached. The idea behind a market system for tradable water (pollution) rights is that when one participant breaches his emission limit (his cap) he can buy rights from a participant who has not used all his pollution rights. Since breaching emission limits is not allowed at the European level, a market system for tradable water pollution rights will not be in line with European obligations, unless a trade system is created within the boundaries of the emission limits.

Introducing a system of tradable water use rights, on the other hand, is indeed possible, since the European Union does not have strict rules in place concerning water quantity. However, it can be questioned whether such a system is more efficient and more environmentally friendly than the current system of a water hierarchy. Furthermore, the costs of introducing such a system have to be weighed against the benefits of the trade system.

Clearly, economic instruments are moving to the forefront. The polluter pays principle is a front runner in these instruments; however, at the Dutch political level it has been determined that the polluter pays principle will not be fully applied to the agricultural sector. This naturally stands in the way of the development of economic instruments in the field of Dutch water policy. Naturally, there are more economic instruments which could be used in the field of water policy; however, further research has to indicate whether these instruments can be used in the Netherlands while the Van der Vlies Resolution is still in place. One possibility could be the introduction of funds for water salvage by the agricultural sector. Yet, it has to be determined whether this fits within the legal framework of European and Dutch law.



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## 1. Introduction

The Netherlands has serious issues when it comes to water quality as the agricultural sector was greatly intensified after the Second World War. Agricultural pollutants such as fertilizers and manure enter surface waters and groundwater, thereby affecting the quality of these waters. In order to improve water quality, it is necessary that alongside point sources of pollution, non-point sources of pollution are also tackled. Furthermore, the Netherlands faces many challenges when it comes to combating flooding, since the country is a delta and for the larger part is below sea level. Although one may think that the Netherlands has enough water, water can also become scarce during periods of drought. Climate change<sup>1</sup> could diminish the amount of water in dry periods and the area which will be affected by droughts will increase. Yet, in wet periods, there can also be too much water due to heavy rainfall. It is therefore important to come up with appropriate measures to deal with water during both dry and wet periods.

### 1.1. Background

Water pollution and water scarcity are major problems which need to be dealt with in an appropriate manner. Finding appropriate measures to deal with these problems could be difficult on a European scale, as measures taken in one Member State may adversely affect the availability of water in another Member State. It is therefore important that the European Union (hereafter, the EU) is involved in the field of water management in order to ensure that water problems are dealt with on a supranational level to avoid conflicts between Member States. Water policy falls within the competences of the European Union as it is part of Environmental Policy, which was added to the EU's competences in 1992 with the Treaty of Maastricht. This entails that the EU can make Regulations and Directives which are binding for all European Member States. That is to say, Regulations and Directives have supremacy over national law, also in the Netherlands.

In order to tackle water-related problems in the various Member States of the EU, the European Commission has come up with a Directive, called the Water Framework Directive (hereafter, the WFD) which incorporates the requirements of fresh water management related to water quality into one single instrument. The WFD is one of the first European Directives which explicitly points to the use of economic instruments in the field of water management. These instruments can be used by EU Member States in order to attain the legally binding environmental objectives of the Directive. The WFD suggests that Member States use economic instruments in their water policies; it does not, however, prescribe which economic instruments should be used. It is therefore up to the Member States to decide which instruments they will introduce in their water policies.

### 1.2. Focus

Now that the EU has suggested that Member States could use economic instruments in their water policies, it is necessary to look at these instruments. Much of the research in the field of economic instruments and water management has focused solely on economic features.<sup>2</sup> However, it is also important that an economic instrument is legally enforceable and that it fits within already existing Community legislation, existing national water law and that it falls within the scope of existing European principles. Therefore, this research will focus in particular on how and if the market-based instruments fit within the current legal system. Dutch water management is, for the larger part, the result of EU water policy. Therefore, both the EU and the Dutch water policies will be part of the discussion on the different economic instruments which could be applied in the Netherlands and the legal constraints which have to be taken into account within the framework of Dutch legislation, the WFD and other European Directives related to water.

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<sup>1</sup> Not all scientists agree that climate change is actually taking place.

<sup>2</sup> See, for example, Verduijn, M., *'Marktwerking als instrument voor waterschaarste in Nederland, 'Een verkenning van de situatie in Amstelland'*, Kennispunt, Utrecht University, 2008.

### **1.3. Questions**

The main research question which will be prominent in this research is the following:

*What are the legal implications and possibilities of introducing economic instruments in the field of water management in the Netherlands?*

In order to answer the main research question it is necessary to break it down into several sub-questions. However, before doing this, it is necessary to start with two introductory questions in order to get a general idea of the development of water policy in both the EU and the Netherlands. This will help us to understand how water policy and the role of economic instruments therein have evolved in both Dutch and European water policy. There are, for example, also numerous European principles which should be taken into account when taking (economic) measures in the field of water management. Therefore, it is important to answer the following (sub-)questions:

- *How has water management evolved in both the EU and the Netherlands?*
- *What are the relevant principles that are prominent in the field of water management?*

Secondly, since there is a wide range of different economic instruments available it is important to look into what kind of economic instruments are suitable for being introduced in the Netherlands. Hence, it is important to look at the different economic instruments which are available at the European and Dutch level and to enquire into their relevance for Dutch water policy. Therefore, we have the following sub-question:

- *What kind of economic instruments can be used in the field of water management at the European and the Dutch level?*

After setting out the variety of economic instruments which are available, three separate case studies will each consider one of these instruments. The Directorate General for Water in the Netherlands has indicated that five of these economic instruments require further research in order to discover whether they can be introduced in Dutch water policy. It is important to look at whether a particular economic instrument is compatible with the European and Dutch legal framework. The economic instruments have to fulfil the criteria of Article 9 of the WFD as well as all other rules which are laid down in European and Dutch legislation. It will thus be investigated whether or not these economic instruments fulfil the criteria in order to conclude whether and how they can be applied in Dutch water policy. In order to do this, the following questions will be answered for each individual case study.

- *What does the economic instrument entail?*
- *Which water-related problem is at stake?*
- *How could the economic instrument solve the water problem in question?*
- *What kind of legal questions are raised by the instrument?*
- *Under which conditions is the economic instrument compatible with EU law and Dutch law?*

### **1.4. Outline**

The outline of this thesis is as follows: The following section will sketch the general framework of water policy in the European Union by providing an overview of European environmental policy and the relevant principles which can be found in the EC Treaty. This will provide more insight into how the EU became involved in water management and also

provides an overview of the water-related Directives which have been adopted over the years. Furthermore, it clarifies the idea behind the adoption of the WFD.

Section three provides a further insight into the Dutch system of water management. Since the Netherlands has had to deal with water over the ages, it has developed a particular way of co-operating in the field of water policy. The adoption of the WFD has implications for the Dutch way of dealing with water. This section will look at these implications and it will explain how and why the Dutch have to change their course of action. As sections two and three set out the background of this thesis, it is possible for experts to skip this general part.

Section four elaborates upon the use of economic instruments in the field of water management in the EU and in the Netherlands. The choice to extend environmental policy instruments by adding economic instruments is further elaborated upon. In addition, the economic instruments which will be discussed in the case studies will be set out.

The subsequent sections will each deal with a case study on a particular (economic) instrument that could potentially be used in the Netherlands in order to help in fulfilling the obligations of the WFD. The choice for a particular economic instrument is the result of an earlier study carried out for the Ministry of Transport, Public Works and Water Management<sup>3</sup>, which pointed to several economic instruments which could be introduced in the Netherlands. Five of these instruments have been chosen for further exploration in this research based on advice by the Directorate-General for Water in the Netherlands. These instruments will be scrutinized as to their legal implications, their legal boundaries and their applicability in the Netherlands.

The first case study can be found in section five and will be devoted to the possibility of introducing an instrument which will provide farmers with financial compensation for a piece of agricultural land that they will take out of production. On this land, wet buffer strips will be created by the Dutch Water Boards. These buffer strips have several functions and could help to improve water quality, but they can also be used to store water. This case study will investigate whether this instrument fits within the current European and Dutch legal framework and will look into the European laws which are relevant for compensating farmers.

The second case study will be discussed in section six and will look at the introduction of pollution levies for non-point sources of pollution in combination with the instrument of compensation for farmers who perform eco-system services. Introducing this instrument may be difficult since the agricultural industry is very powerful at the Dutch political level. This section will look into the possibilities of introducing a levy for non-point sources of pollution and it will shed some light on the problems, obstacles and solutions related to this instrument.

The third case study can be found in section seven and will discuss the possibility of introducing a system of tradable water rights. These rights can be either based on water quality and/or water quantity. Both of these economic instruments will be looked at. A trading system will create a market for water rights, which will assure that the water rights will end up with the party who will add the most economic value to these rights. This may stimulate sustainable water use and is thus very helpful in realising the goals of the WFD. This case study will look into the legal factors which should be taken into account when introducing such a system and considers whether such a system is legally feasible in the Netherlands.

In section eight, conclusions can be found. Here, the research question and the sub-questions will be answered. This section will reflect on everything that has been stated in this research and will conclude which of the economic instruments discussed in the case studies could form an interesting addition to the existing direct regulatory instruments in the Netherlands. Recommendations will be made as to how such instruments should be introduced and which factors should be taken into account. At the end of the day, this will give us an idea as to which economic instruments are legally feasible and under what conditions.

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<sup>3</sup> Van der Veeren, R., *'Tijd voor een andere financiering van het waterbeheer?'*, RWS Waterdienst, Lelystad, 2009.

## **2. The Development of Water Policy in the European Union**

Water policy has only gradually become important to the EU, as it was not part of the agenda for a considerable number of years. The European Economic Community was established with the Treaty of Rome in 1957; however, its main focus was on economic cooperation. In the 1970s the European public started to become more aware of the deterioration of the environment and the public health issues which came along with it. In addition, more scientific knowledge became available on environmental problems and the possible solutions. The EU's heads of state and government therefore decided in a meeting to extend common policy action to the field of the environment. This was the start of European involvement in the field of the environment and, consequently, also in water policy. The following section will look at the development of EU policy in the field of water and will identify the triggering factors behind the formalisation of EU water policy.

### **2.1. The EU's Competences in the Field of Water Management**

The main reason behind the creation of the European Economic Community in 1957 was economic unity between its members.<sup>4</sup> The ultimate goal was to create a single market. In a single market all physical (borders), technical (standards) and fiscal (taxes) barriers among the Member States have to be removed. In addition, common policies are to be formulated which will be applied in all participating Member States. The harmonisation of rules relating to the internal market is one of the fundamental aspects on which the European Community is based.

The competence of the EU to become involved in national matters can be found in Article 5 of the EC Treaty. Here one can find the principle of subsidiarity. This principle allows the EU to become involved in those activities 'that cannot be sufficiently achieved by the Member States individually and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community'. This principle ensures that the EU does not take action (except in the areas which fall within its exclusive competence), unless it is more effective than action taken at the national, regional or local level.<sup>5</sup> Since it has been decided at the European level that environmental issues are better dealt with on a supranational level because of the transboundary character of environmental problems, problems related to water now also fall within the competences of the European Community. Furthermore, one can state that water is closely linked to other sectors such as agriculture and industry (in the case of water pollution), which makes it even more necessary for the EU to act in this field.

Nevertheless, the competences of the EU are further limited by a principle which can also be found in Article 5 of the EC Treaty, namely the principle of proportionality. The proportionality principle regulates the exercise of powers by the European Union, seeking to set within specified bounds the action taken by the institutions of the Union. The involvement of the EU's institutions must be limited to what is necessary to achieve the objectives of the Treaties. This rule implies that when various forms of intervention are available to the EU, it must, where the effect is the same, opt for the approach which leaves the greatest freedom to the Member States and individuals.<sup>6</sup> This is why one can find mostly Directives in the field of water management, which leave more room and policy discretion for the Member States than Regulations. With Directives a particular result has to be achieved without dictating the means by which to achieve that result. Regulations, on the other hand, do not need further implementation and are directly enforceable as law in all Member States.

### **2.2. The First Water-Related Directives**

The earliest legislative measures dealing with water can be traced back to the European Community's first action programme on the environment. European legislation on water was initiated with two key Directives, issued in 1975 and 1976. The first one dealt with the principles and standards which are necessary to improve and sustain the environmental quality of waters intended for drinking water abstraction.<sup>7</sup> The second Directive regulated the

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<sup>4</sup> The structure of the European Union can be found in Annex IV of this research.

<sup>5</sup> [http://europa.eu/scadplus/glossary/subsidiarity\\_en.htm](http://europa.eu/scadplus/glossary/subsidiarity_en.htm)

<sup>6</sup> *Ibid.*

<sup>7</sup> Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the Member States, *OJ L* 194, 25.7.1975.

discharge of dangerous substances into the aquatic environment.<sup>8</sup> The reasons for adopting these two Directives were to harmonise environmental law within the Union, to remove trade barriers and to avoid the distortion of competition, and, just as important, to protect public health. Since the European Commission was not yet competent under the first European Treaty of Rome (1957) to develop legislation for environmental or public health issues, these Directives were based on Article 100 of the EC Treaty on the harmonisation of Member States' laws to allow for the functioning of the common market and/or Article 235 which justifies intervention in policy areas where competence is not designated, if necessary to achieve the other objectives of the Community.<sup>9</sup> Thus, in the absence of a legal basis for the harmonisation of environmental rules, such legislation could be implemented in so far as it could be based on the legal basis for the harmonisation of internal market legislation.

These Directives were soon followed by a Directive on the quality of water for fish and shellfish<sup>10</sup>, and a Directive on the discharge of substances into groundwater<sup>11</sup>. The legislative rules within the Directives are based on quality objectives. Environmental quality standards are determined and are legally binding. For example, levels of pollution are given which should not be exceeded in the given environment. The Member States are to identify the waters within their territory to which the Directives will apply. The competent authorities in the Member States are made responsible for sampling, analysis and inspection in accordance with the provisions of each of the Directives. The rules and procedures for the monitoring of the standards and the reporting on their implementation were subsequently laid down in a number of separate Directives. The Directives related to water pollutants focus more on the quality of permissible levels of discharges of particular pollutants and thus concentrate upon emission standards. In addition, they use environmental quality standards for certain dangerous substances.

### **2.3. New Developments in EU Water Policy**

An important wake-up call for Europe was the Sandoz disaster. Due to a catastrophic fire at a chemical factory in Switzerland tons of toxic chemicals entered the Rhine River, colouring its water red. Tons of fish died and drinking water could no longer be extracted from the Rhine. This event resulted in a meeting between the Member States involved and the International Commission for the Protection of the Rhine<sup>12</sup>, resulting in increased cooperation in the field of cross-border water management. In addition, a number of gaps in Community action with respect to water environment issues were pointed out in an Environment Ministers' meeting in Frankfurt in 1988. Also, the eutrophication of water due to organic sewage pollution and the diffusion of nitrates and phosphates from agricultural use became priority points on the agenda. Nitrate pollution also raised concerns in view of the potential diffusion and contamination of drinking water supplies and the costs involved in its treatment.

When the Maastricht Treaty was adopted in 1992, a European competence for a common environmental policy was finally formalised. A separate chapter was added to the EC Treaty dealing with the competences of the EC in the field of Environmental Policy. Title XIX of the EC Treaty now includes Article 174 EC Treaty mentioning the fundamental principles which should be taken into account when making policy in the field of the environment.<sup>13</sup> Thus, from 1992 onwards environmental protection became the focus of relevant EU action.

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<sup>8</sup> Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, OJ L 129/23, 18.5.1976. (This Directive was republished as Directive 2006/11/EC of the European Parliament and of the Council of 15 February 2006 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, OJ L 64/52, 4.3.2006).

<sup>9</sup> Kallis, G., Nijkamp, P., *'Evolution of EU Water Policy: A Critical Assessment and a Hopeful Perspective'*, Research Memorandum 1999-27, Vrije Universiteit, Amsterdam, 1999.

<sup>10</sup> Council Directive 79/923/EEC of 30 October 1979 on the quality required of shellfish waters, OJ L 281, 10.11.1979.

<sup>11</sup> Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances, OJ L 20, 26.01.1980.

<sup>12</sup> The International Commission for the Protection of the Rhine against Pollution (ICPR) was founded in Basel on 11 July 1950. Thus, the ICPR already existed at the time of the cooperation between the EC and the ICPR.

<sup>13</sup> Article 174 EC Treaty can be found in Annex I. Other principles relevant to European Environmental Policy are further elaborated upon in, for example: Jans, J.H., *'European Environmental Law'*, Europa Law Publishing, Groningen, 2008.

The Fourth Framework Programme on the Environment subsequently led to the adoption of two Directives on the control of pollution from urban waste water disposal<sup>14</sup> and the control of diffuse nitrate pollution from agricultural uses,<sup>15</sup> also known as the Nitrates Directive.<sup>16</sup> The Nitrates Directive proved to be the first attempt at coupling environmental protection with decentralisation through framework action. Unfortunately, the performance of the Member States was very poor, and led to a number of infringement procedures. Nevertheless, water became the sector within the EU with the most comprehensive coverage in EU environmental regulation.<sup>17</sup>

Water quantity aspects and protection against flooding were at this point not part of European water legislation. The reason for this is that solutions to these problems were mostly dealt with at a national level with spatial planning and practical or technical measures. In addition, it was thought that water quantity had little to do with the internal market and therefore, in line with the principle of proportionality, it was not considered to be a task for the Community. However, these ideas have changed as severe floods in Europe occur more often and result in significant damage. Therefore, the Floods Directive<sup>18</sup> was adopted in 2007.

One can observe that the Directives mentioned above and summarized in figure 1 below, all cover a separate aspect of water. The approach of the EU was therefore called sectoral. This sectoral approach did not seem to be effective as coastal, surface and groundwater in the EU still experienced alarming degradation. The problem was that the Directives looked at each problem separately, often with different or even conflicting methodologies, definitions and aims. Therefore, it was necessary to change course. The Water Directives needed to be integrated in order to protect the EU's waters more extensively and effectively. These ideas led to a new draft Directive in 1997. This Directive would substitute the proposed Directive on the ecological quality of water and the Directives for the quality of surface drinking waters and fish and shellfish waters, and would incorporate a new system for the regulation of discharges of dangerous substances into the aquatic environment. This Directive is called the Water Framework Directive (hereafter, WFD).<sup>19</sup>

There are also initial plans for a separate EC Water Quantity Directive, following from the EC policy concerning water scarcity in case of droughts. In addition to the WFD, two daughter Directives have been shaped, one dealing with groundwater,<sup>20</sup> which is already in force, and one dealing with environmental quality standards for priority substances<sup>21</sup>. Furthermore, the Marine Strategy Framework Directive<sup>22</sup> was adopted in 2008.

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<sup>14</sup> Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment, OJ L135, 30.5.1991.

<sup>15</sup> Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, OJ L 375, 31.12.1991.

<sup>16</sup> *Supra* note 9, p. 6.

<sup>17</sup> *Ibid*, p. 1-3.

<sup>18</sup> Council Directive 2007/60/EC on the assessment and management of flood risks of 26 November 2007, OJ L 288/27, 6.11.2007.

<sup>19</sup> *Supra* note 9, p. 2 and 13.

<sup>20</sup> Directive 2006/118/EC of 12 December 2006 on the protection of groundwater against pollution and deterioration, OJ L 372/19, 27.12.2006.

<sup>21</sup> Directive 2008/105/EC of 16 December 2008 on environmental quality standards in the field of water policy, OJ L 348/84, 24.12.2008.

<sup>22</sup> Directive 2008/56/EC of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy, OJ L 164/19, 25.6.2008.

<b>1975</b>	- Council Directive 75/440/EEC of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the Member States.
<b>1976</b>	- Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.
<b>1980</b>	- Council Directive 79/923/EEC of 30 October 1979 on the quality required of shellfish waters. - Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances
<b>1991</b>	- Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment. - Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.
<b>2000</b>	- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.
<b>2006</b>	- Directive 2006/118/EC of 12 December 2006 on the protection of groundwater against pollution and deterioration
<b>2007</b>	- Directive 2007/60/EC of 26 November 2007 on the assessment and management of flood risks.
<b>2008</b>	-Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy. - Directive 2008/105/EC of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council.

**Fig 1.**

#### **2.4. The Water Framework Directive**

The WFD aims to incorporate all requirements for fresh water management into one single Directive. It aims at integrated water system management and therefore focuses more on the integrated protection of ecosystems. The purpose of the Directive can be found in the preamble and in Article 1 which is the achievement of a 'good status' for European waters by 2015. Article 1 furthermore mentions the general goals of the Directive, which focus on both water quality and water quantity (water scarcity). The goals are fairly general. For example, Article 1 (b) states that sustainable water use based on the long-term protection of available water resources should be promoted. In particular, the goals connected with water quality are further elaborated upon in Article 4 of the WFD.

Article 2 of the WFD provides definitions of the terms used in the WFD. Here it is specified that the term 'good status' refers to a situation in which water meets the standards established in existing environmental protection Directives and the new ecological quality standards. Article 4 of the WFD makes a distinction between the good status of groundwater and the good status of surface waters. 'Good status' is again divided into a chemical component, which applies to groundwater as well as to surface waters, and an ecological component, which refers to surface waters only.

'Good ecological status' is defined in Annex V of the WFD and refers to a situation in which the ecological quality only slightly deviates from the biological community that would be expected in conditions of minimal anthropogenic impact. 'Good chemical status' is defined in terms of compliance with all the quality standards established for chemical substances at the national and European level. Article 4 of the WFD states that the requirement of a 'good status' for all waters in 2015 applies to all surface waters and groundwater and protected areas. Waters may be designated as 'artificial' or 'heavily modified'. When it comes to the ecological status these waters only need to have a 'good ecological potential'. However, they do have to comply with a 'good chemical status'. Less stringent objectives or postponing the deadline and/or a reduction of the objectives are allowed under very strict conditions in accordance with Article 4 (5) of the WFD.

The emission limit values and the environmental quality standards for the discharge of pollutant substances are, just as in the old water-related Directives, legally binding under the

WFD.<sup>23</sup> The WFD also mentions protected areas in Article 6, but these are not designated under the WFD, except in the case of drinking water, which is laid down in Article 7 of the WFD. Protected areas must be designated under other Community Directives such as the Habitats Directive. Article 6 requires that these areas are listed in a register and states that the most stringent protection regime is applicable to these areas.

The WFD also incorporates the rules for groundwater in Article 4 (b). All direct discharges into groundwater are prohibited and a requirement is introduced to monitor bodies of groundwater so as to detect changes in their composition due to diffuse pollution and to take measures to reverse them. Moreover, groundwater is not to be extracted at higher rates than its natural replenishment rate.

The WFD states that water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such. Nevertheless, it is increasingly realised that the price paid for water covers only part of the water use. Water does not have an adequate price, which could lead to overuse or inefficient distribution of water resources. Especially now that climate change affects the amount of water available, it is important to deal with water in an efficient and sustainable manner. The WFD incorporates these concerns in Article 9.<sup>24</sup>

Article 9<sup>25</sup> also mentions that economic instruments can be used by the Member States in order to attain the environmental objectives regarding the good status of water as mentioned in Article 4 of the WFD. It is stated that Member States shall take into account the principle of the recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance with the polluter pays principle. Water pricing policies should thus provide adequate incentives for users to use water resources efficiently

Next to Article 9 WFD, the Directive mentions in several other Articles that water policy on Member State level should be cost-effective. Furthermore, the Commission states that it actively promotes the use of economic instruments in an environmental context as indicated in the Green Paper on Market-Based Instruments.<sup>26</sup> In this (non-binding) Communication the Commission emphasizes that the WFD offers enough room to tackle both water scarcity and droughts by using such instruments.

Nevertheless, economic instruments have not yet been widely used in the EU Member States. Economic instruments which are used most commonly in the Member States are taxes and levies and a particular price per m<sup>3</sup> of water. Spain is one of the few European Member States which has a system of tradable water rights in place.

However, now that Article 9 of the WFD specifically points to the use of economic instruments in order to guarantee the efficient use of water resources, the variety of instruments used by the Member States may have to increase. Furthermore, Member States have to take into account the principle of cost recovery and the polluter pays principle. Cost recovery entails that the price for water services will also include the environmental and resource costs. This should stimulate the user of water to increase the efficiency of its water use and to reduce pollution. Whether or not this is the case in the Netherlands will be discussed later on in this research in the second case study.

The polluter pays principle is the driving force behind the economic approach of the WFD and can also be found in Article 174 of the EC Treaty. The principle entails that the polluter should bear the cost of pollution in order to control the amount of pollution. The price of the goods that cause environmental pollution or degradation should be corrected for the pollution it causes. In this way, external costs are internalised. A related principle is the user pays principle, which entails that the user of, for example, water will pay for the use and purification of the water.<sup>27</sup> In any case, all measures that are taken by the Member States should respect this principle. Next to that it is also necessary that measures taken by Member States respect all other principles related to the environment, which can be found in Article

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<sup>23</sup> Van Rijswijk, H.F.M.W., *Moving Water and the Law, on the distribution of water rights and water duties within river basins in European and Dutch water law*, Europa Law publishing, Groningen, 2008, p. 13.

<sup>24</sup> Keudel, M., *Climate Change and Water Resources – An International Perspective*, University of Cologne, IWP Discussion Paper No. 2007/2, 2007.

<sup>25</sup> The complete Article 9 of the WFD can be found below in Annex II.

<sup>26</sup> COM(2007)140, Green Paper on Market-Based Instruments for Environment and Related Policy Purposes, {SEC (2007) 388}, Brussels, 28.03.2007.

<sup>27</sup> *Supra* note 23.

174 of the EC Treaty. In fact, all measures related to the field of the environment should respect these environmental principles.<sup>28</sup>

Although the WFD is to replace many old water-related Directives, these will not be replaced all at once. The old water-related Directives and the rules therein will still be in force until the last ones expire in 2013. The replacement of the old Directives with the WFD fits better with the initial purpose of Directives, in which the goal is determined by the Commission, and the means as to how to attain this goal were left to the Member States. The old water-related Directives have many detailed rules regarding quality standards and objectives. The WFD thus leaves more freedom for the Member States.

## **2.5. Conclusion**

As water falls under the environmental policy of the EU and also touches upon the internal market of the EU it was possible to make EU policy in this particular field. The development of water policy in the European Union can be traced back to the 1970s and resulted in a very comprehensive set of water-related Directives. It was thought that the regulation of water use and water pollution would create enough protection for water systems and provide everyone with safe and clean water. Although this approach led to some good results, it was realised that the sectoral approach which was taken initially did not result in the sustainable use of water. A more integrated approach has been realised with the adoption of the European Water Framework Directive which will incorporate all water-related Directives into one instrument.

Furthermore, the WFD is the first water-related policy instrument which mentions the use of economic instruments. Therefore, economic instruments are now moving towards the forefront. This makes it necessary for Member States to look into how they could use such instruments in their national water policies. Yet, the EU solely states in the WFD that economic instruments can be used by Member States.<sup>29</sup> The EU does not dictate which instruments will have to be used by the Member States. The WFD is a Directive, and thus leaves room for the Member States to make their own choices for one or more particular economic instruments. The following sections will look at this development in more depth and at the possibilities of introducing economic instruments in the Netherlands.

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<sup>28</sup> See Annex I for the principles which are mentioned in Article 174 of the EC Treaty.

<sup>29</sup> Whether economic instruments should be used has been investigated by Keessen, A., van Rijswijk, M., and de Vries, S., *'Afschaffing van de Nederlandse Verontreinigingsheffing in Europees Rechtelijk Perspectief'*, Universiteit Utrecht, 2009. This research points out that it is not clear whether Article 9 really obliges Member States to use economic instruments.

### 3. The Netherlands and Water Management

EU Water policy greatly influences water policy in the Netherlands as the WFD and other policy instruments coming from the EU have to be transposed into Dutch law. Yet, the Netherlands can be considered a special country when it comes to water as it is a delta and is largely located below sea level. In order to deal with floods, the Dutch had to build dikes and sluices for both the peat lands and the areas inland. Figure 2 below illustrates what the Netherlands would look like without dikes, sluices and dams. Next to the fact that the Dutch have reclaimed some parts of the country from the water, many projects also ensured that flooding would be reduced. In order to pay for the dikes and sluices community groups organised themselves which would later be known as water boards. Water policy in the Netherlands thus has quite a long history and a unique character.

Nevertheless, the Netherlands also has to respect the rules as laid down in the WFD. Furthermore, the Netherlands faces new challenges nowadays, for example the floods of 1993 and 1995 due to heavy rainfall and also the problem of high amounts of pollutants in surface water which are, among other things, the result of intensive agricultural farming. Now that the Netherlands has succeeded in reducing water pollution from industrial sources, the agricultural sector is the most important remaining problem. This section will look at these problems and discuss how the Netherlands deals with water management and the implementation of the WFD. [de kaart hieronder is in het nederlands!!!!]



Fig. 2.<sup>30</sup>

#### 3.1. The Dutch Institutional Context

When it comes to the legal aspects of Dutch water law, the water boards play a crucial role, as they manage both water quality and water quantity in regional areas. The Netherlands has 27 different water boards. The water boards finance qualitative water management by imposing water system levies, purification levies and pollution levies. Water

<sup>30</sup> <http://upload.wikimedia.org/wikipedia/commons/7/70/NederlandvolgensNAP.PNG>

boards are able to adjust all these levies in order to ensure that their cost recovery is more or less 100 %.<sup>31</sup>

The water quality and quantity problems experienced by the water boards require international cooperation in river basins. This is particularly important for the Netherlands since it is located downstream of four rivers. Local, regional and also international cooperation is therefore crucial. Fortunately, the Dutch are very experienced when it comes to cooperation. The 'polder model' is a result of cooperation between different actors within the Dutch water boards. Already in the middle ages<sup>32</sup>, Dutch water management was based on cooperation between several owners and users of land who all profited from protection against water. Later on, cooperation was also necessary between several policy areas such as agriculture and spatial planning. The polder model is characterised by searching for shared goals and making compromises between the different actors and it has been very successful when it comes to water quality and water quantity, but also for flood protection and safety.

Next to the water boards more than 400 municipalities in the Netherlands also have a large role to play in Dutch water management. The municipalities take care of the sewage and water quantity in the cities. The costs of these services are retrieved from the users of the sewage, like households. Furthermore, the 12 provinces of the Netherlands are responsible for the management of groundwater. It is necessary for parties to have a permit in order to extract large amounts of groundwater. In addition, levies are imposed on ground water use. The money from the permits and the levies is invested in research which will contribute to tackling droughts in the Netherlands.<sup>33</sup>

Additionally, the Directorate General for Public Works and Water Management (*Rijkswaterstaat*) also plays a significant role in the field of Dutch water management. This institution is responsible for both water quality and water quantity in large rivers, lakes and the sea. They retrieve the money to perform their services from the general means of the Dutch government and from pollution levies. Lastly, private parties, like the industrial sector, the agricultural sector and households also take some measures themselves. For example, some industries carry out their own water purification.<sup>34</sup>

### 3.2. Legislative Acts regarding Water

In the Netherlands one can find a great number of legislative acts on water. The acts concerning the quality of water are, for example, the Pollution of Surface Waters Act (*Wet Verontreiniging Oppervlaktewateren WVO*) of 13 November 1969, which came into force after severe water quality problems were found. Other acts concerning the quality of water are the Marine Pollution Act (*Wet Verontreiniging Zeewater*) of 5 June 1975, protecting the quality of sea water, the Groundwater Act (*de Grondwaterwet (Gww)*) of 22 May 1981, regulating the distribution of scarce groundwater resources, the Soil Protection Act (*Wet Bodembescherming (Wbb)*) of 3 July 1986 and the Environmental Management Act (*Wet Milieubeheer(Wm)*) of 13 June 1979, regulating the quality of groundwater.

Unlike other Member States, an authorisation to discharge is not regulated in environmental legislation, but in the Pollution of Surface Waters Act, with the regional water boards and the Minister of Water Management as the competent authorities. Water boards also have a Water Board Act (*Waterschapswet*) in place. Next to acts concerning water quality, one can also find legislation concerning flood protection and water quantity management such as the Land Reclamation and Dikes Act (*Wet Droogmakerijen en Indijkingen*) of 14 July 1904 and the Water Management Act (*Wet op de Waterhuishouding*) of 14 June 1989.<sup>35</sup>

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<sup>31</sup>[http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief\\_teksten/nummer\\_4\\_maart\\_2008/financiering\\_van\\_het/](http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief_teksten/nummer_4_maart_2008/financiering_van_het/)

<sup>32</sup> <http://nl.wikipedia.org/wiki/Poldermodel>. See also; Klooster, J.P.G.N., Torenbeek, R., de Vries, C.J., Wind, M.H.A., 'Verhandelbare Waterrechten, Verkenning van een Nieuw Instrument in het Integraal Waterbeheer', CE, Delft, 2007, at p. 21.

<sup>33</sup>[http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief\\_teksten/nummer\\_4\\_maart\\_2008/financiering\\_van\\_het/](http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief_teksten/nummer_4_maart_2008/financiering_van_het/)

<sup>34</sup>[http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief\\_teksten/nummer\\_4\\_maart\\_2008/financiering\\_van\\_het/](http://www.helpdeskwater.nl/watertoets/nieuwsbrieven/nieuwsbrief_teksten/nummer_4_maart_2008/financiering_van_het/)

<sup>35</sup> Van Rijswijk, H.F.M.W., 'Interaction between European and Dutch Water Law', in: Reinhard, S., Folmer, H., *Water Policy in the Netherlands, Integrated Management in a Densely Populated Delta*, Washington, 2009, p. 219.

On 2 June 2003, the national government, provincial authorities, municipal councils and water boards signed the National Administrative Agreement on Water (*Nationaal Bestuursakkoord Water (NBW)*). This agreement lays down what should be done to tackle the problems related to water in the Netherlands. These problems include, for example, a sea level rise. Besides a sea level rise, climate change could result in more rainfall over shorter periods of time. Rainwater will be transported towards surface water more quickly, due to drainage and a reduction of the storage capacity in the soil and due to agricultural requirements and expanding urban areas. This leads to an increased possibility of flooding, as experienced in 1993 and 1995. However, on the other hand, the summer period will see an increased possibility of droughts and salinisation, due to less precipitation, more evaporation and salt intrusion from sea water into fresh water. All these different problems have to be dealt with, and it has therefore been agreed to get the Dutch water system into good shape by 2015, which is also a commitment in the WFD.<sup>36</sup>

### **3.3. Transposing the Water Framework Directive into Dutch Law**

European law has to be transposed into national law and has supremacy over national law. Therefore, it greatly influences Dutch water law and water management. The European Directives related to water contain a variety of strict obligations, including obligations to guarantee environmental quality standards. When the obligations are not achieved, there is a possibility that Member States will face European infringement procedures and possible fines. The water quality obligations in the WFD have been implemented into Dutch environmental legislation by means of an Order in Council (*AMvB*). Furthermore, they can be found in the Water Act and the Environment Management Act. However, it is also important that the Directive is enforceable. For example, concepts as laid down in EU legislation have to be transposed into operable definitions. This process will assure that the Netherlands correctly implements the WFD.<sup>37</sup>

The WFD contains many strictly binding obligations. Therefore, some parties involved in the Netherlands have not received the WFD with open arms. It could, for example, become impossible for the Netherlands to make use of the polder model since in many cases cooperation in the polder model results in a compromise without strictly holding on to legally binding obligations. Now that the norms and the purpose are binding, cooperation must be given form within stricter boundaries. This may be more difficult since local and regional authorities only want to take measures which will lead to a guaranteed result.

The main problem could then be that the Netherlands does not live up to all the obligations mentioned in the WFD. This may result in court cases before the European Court of Justice (hereafter ECJ) for failing to implement the Directive. In order to avoid these court decisions it is necessary to have strong legal instruments at state level in order to influence the decisions taken at a decentralised level. In the Netherlands, for an important part, decisions regarding water are taken at a decentralized level. Nevertheless, the minister can overrule decisions taken at a decentralised level, but he prefers not to do this. Yet, the State Secretary has already pointed out that when the decentralised bodies fail to achieve the obligations of the WFD, the fines that come along with the ECJ decisions will have to be paid by the decentralised authorities.

Hence, one can already observe that the implementation of the WFD was not a very smooth process in the Netherlands. Especially the final discussion of the bill on the transposition of the WFD into Dutch national legislation led to problems. This was mainly due to a report by Alterra, which stated that the Dutch agricultural sector would suffer seriously under the WFD. As a result, the Dutch Lower House refused to discuss the bill before it was clear how the WFD was to be implemented in the Netherlands.

Furthermore, the ECJ started procedures against the Netherlands for not transposing the WFD on time. However, the Dutch finally adopted the Water Framework Implementation Act after the State Secretary had presented a memorandum on the Pragmatic Implementation of the WFD to the Lower House. The basic principle of this memorandum was to follow the minimum requirements of the WFD and to try to link as much of these requirements as possible to already existing Dutch water policy. The memorandum creates a framework in

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<sup>36</sup> *Supra* note 35, p. 218.

<sup>37</sup> Boumans L.J.M, Reijnders, H.F.R., Verweij W., 'KRW en GWR: Handreiking trend en trendomkering', RIVM Rapport 607300006/2008, 2008.

which all levels of government in the Netherlands had to attempt to correctly realise the obligations of the WFD.

The WFD has been implemented in Dutch legislation by changing the Water Management Act (*Wet op de Waterhuishouding*) of 14 June 1989 and the Environmental Management Act (*Wet Milieubeheer*) of 13 June 1979 on several points. The execution of the WFD places high demands on decentralised governments which play a role in the management of water. It is their task to ensure that surface waters will reach the good ecological status by 2015.



Fig. 3.<sup>38</sup>

### 3.4. A New Approach to Water Management

In order to realise the aims of the NBW in 2003, several agreements have been concluded regarding safety, flooding, groundwater depletion, salinisation, the quality of water, ecology etc. Both the approach and the implementation take place in stages with the aid of an integrated working method. The integrated method is reflected in the fact that the implementation of the NBW can be combined with other plans in other policy areas such as rural development, for example. In addition, the tasks have been divided between the central authorities, the provinces, the water boards and the municipalities.<sup>39</sup>

In order to be able to deal with the integrated approach of the WFD, the Integral Water Act has been drafted by the Dutch government in 2008. This Act consolidates and replaces eight existing Acts on water. The main objectives of this Act are the prevention and mitigation of flooding and water shortages as well as the protection and improvement of the chemical and ecological quality of water systems. In addition, it focuses on achieving an integrated system of water management by the Dutch authorities. In fact, it will assist the practical achievement of the WFD's objectives. Especially noteworthy is the fact that one permit will be required for all water activities which have an impact on the aquatic environment instead of having to obtain several separate permits, which is also one of the purposes of the WFD. The Water Act has already passed through the First Chamber and will enter into force in December 2009. Within this new legislation there will also be room for new solutions concerning safety and flood protection, since the Dutch have chosen a new way to protect people and property against these risks. The new approach will furthermore have an effect on development regarding spatial planning, since it also addresses the fact that water needs more space.<sup>40</sup>

<sup>38</sup> Nieuwsbrief Emissies, Ministerie van Verkeer en Waterstaat, Directoraat-generaal Rijkswaterstaat, November 2005, RIZA on:

[www.helpdeskwater.nl/asp/download.aspx?PagIdt=26998&File=riza\\_special\\_kaderrichtlijn\\_water.pdf](http://www.helpdeskwater.nl/asp/download.aspx?PagIdt=26998&File=riza_special_kaderrichtlijn_water.pdf)

<sup>39</sup> *Supra* note 35, p. 217.

<sup>40</sup> *Ibid.* p, 218.

Although the Water Act is to be an integrated act, it has to be noted that a part of water management will not form part of the Water Act. The Water Act only concerns water system management and it does not include water chain management. Water chain management comprises the pathway from drinking water supplies to wastewater treatment. This will be mainly regulated under the Environmental Management Act. Only wastewater treatment is regulated under the Water Act and the regional water boards are the competent authorities.<sup>41</sup>

Looking at the Water Act and its relation to the WFD one can observe that the legal standards for the quality of water directly refer to Article 4 of the Water Framework Directive: good ecological and good chemical status. These standards are laid down in a regulation based on the Environmental Management Act as environmental quality standards. Legal standards for flood protection are still based on the Flood Defences Act, but will in the future be based on the Water Act. Legal standards for surface water quantity are not yet present in the Netherlands, but will also be based on the Water Act in the future. It is important that these legal standards have a binding character in order to achieve the water management goals. Therefore, the Water Act opts for a legally binding role for water standards in decisions based on the Water Act.<sup>42</sup>

When it comes to the environmental quality standards based on the Environmental Management Act, the Dutch government has not decided whether these quality standards should be binding for decisions taken in other policy areas and based on other acts in the field of the environment, nature conservation, spatial planning and product policy. There is an ongoing discussion whether or not EC law obliges environmental quality standards to have a binding role in decision making in other policy areas. This is also very important for environmental quality standards based on the WFD. The national water plans will be signed by several Ministers, responsible for the environment, spatial planning, water management, agriculture and nature conservation. This should lead to responsibility in all these policy fields to achieve the goals of the Water Framework Directive and the Dutch Water Act.<sup>43</sup>

Although Member States were free to make use of economic instruments in water policy before the adoption of the WFD, this has now become more important due to the WFD. Therefore, research is needed in order to find out which economic instruments could be introduced in the Netherlands while respecting the existing legal framework. The Directorate General for Water in the Netherlands has already made some inquiries into this subject and has pointed out which economic instruments could be interesting for the Netherlands. These preferences will be discussed in the following chapter.

### **3.5. Conclusion**

The Netherlands has developed a political system which is based on cooperation and reaching compromises. This system is reflected in what is called the 'polder model'. The adoption of water legislation in the EU affects the way water is managed in the Netherlands, as EU law has supremacy over national law. The implementation has led to some commotion in the Netherlands due to the fact that many parties might face an increase in costs. Although the Netherlands had signed the WFD, there were still many problems with the transposition of this Directive. However, due to the presentation of the Pragmatic Implementation of the WFD agreement was also reached regarding its transposition.

The Netherlands already has quite a comprehensive water legislation covering many aspects of water. Although the Netherlands adopted an integral approach to water even before the EU did this, the legal Acts have not followed this approach, leading to an overload in water legislation. With the adoption of the NWB an integrated working method has been realised by dividing different tasks between national, regional and local authorities. In addition, the adoption of the Integral Water Act may also contribute to realise the goals of the WFD. Now that the WFD has been implemented, questions surrounding the use of economic instruments move to the forefront. Therefore, it is necessary to look into this subject in order to realise the use of economic instruments in the Netherlands. It is likely that these instruments will help the Netherlands to achieve the obligations of the WFD. However, this will have to be looked into in order to establish if this is really the case.

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<sup>41</sup> *Supra* note 35, p. 218.

<sup>42</sup> *Ibid.*

<sup>43</sup> *Ibid.*, p. 219.

## 4. Economic Instruments in the EU and the Netherlands

As can be concluded from the previous sections, the introduction of the WFD at the European level has made the European Member States aware that they should start thinking about the introduction of economic instruments in the field of water management. Water-related problems in Member States may differ, therefore not all Member States will choose the same instruments. In the Netherlands, research has been carried out by the Dutch Centre for Water Management concerning the question of which economic instruments could be used for a particular water-related problem. The discussion based on this report has resulted in a number of economic instruments which are preferred by the Directorate General for Water in the Netherlands. This section will discuss these options after having looked into the development of economic instruments in the EU and the types of regulation available.

### 4.1. Development of Economic Instruments

The use of economic instruments, in policy debates, was first mentioned in the Rio Declaration on Environment and Development of 1992, in particular in Principle 16 thereof, which states:

*'National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment'.*

Alongside the WFD, one can find economic policy objectives on the European level in the Fifth and Sixth environmental action programmes of the European Commission. In these programmes it is mentioned that an extension of environmental policy instruments with economic instruments is one of the priorities. Furthermore, in its communication<sup>44</sup> addressing the challenges of water scarcity and droughts in the EU, the European Commission refers to economic instruments. Although a Communication is not binding upon the Member States, it does give Member States advice as to how to tackle scarcity and droughts. The Communication points to several policy strategies which could be used by the Member States in the field of water management. In addition, in the Green Paper on Market-based instruments the European Union points out that it favours the use of economic instruments since these instruments provide flexible and cost-effective means for reaching policy objectives.<sup>45</sup>

Since the EU does not oblige the Member States to make use of any specific economic instruments, the development of economic instruments will take place at the national level. Cost recovery, however, is also mentioned in Article 9 of the WFD and is obligatory for the Member States. However, the discussion will mainly focus on the development of economic instruments on the Dutch (national) level.

### 4.2. Direct and Indirect Regulation

When discussing economic instruments one could think of a wide range of instruments such as price policy, subsidies, levies, tax systems and (emission) trade systems. De Smedt and Maes (2006) distinguish two types of regulation, namely direct and indirect regulation. Direct regulation refers to legal instruments (also known as command and control instruments), and indirect regulation refers, among other things, to economic instruments. Direct regulation instruments come in the form of prohibition orders, permit systems, and emission norms. Direct regulation instruments determine the environmental goals per actor and thus aim at individual compliance. An example of a direct regulatory instrument is a discharge prohibition order, which can be found in Dutch legislation under the Pollution of Surface Waters Act (*Wet Verontreiniging Oppervlaktewateren (WVO)*). All discharges into surface water should be subject to a permit in accordance with Article 3 of that Act.

The positive side of this form of regulation is that it is highly probable that the objectives will be attained. However, the downside is that direct regulation does not trigger better

<sup>44</sup> COM (2007) 414, Communication from the Commission to the European Parliament and the Council Addressing the challenge of water scarcity and droughts in the European Union, {SEC(2007) 993},{SEC(2007) 996}, Brussels, 18.07.2007.

<sup>45</sup> *Supra* note 26.

performance. Once the norms have been attained, there is no stimulation to invest in new technologies in order to further reduce emissions. Although there is an obligation to use the Best Available Techniques (*BAT*) when receiving a permit, after having received the permit there is no further stimulant to perform better. In addition, de Smedt and Meas (2006) argue that direct regulation does not lead to cost-effective solutions.<sup>46</sup> Nevertheless, most EU Member States regulate the use and pollution of water with direct regulation instruments. The reasons for this are, for example, that it is less complicated to control these measures and of course because EU water law obliges Member States to use permits.

Indirect regulation, on the other hand, does stimulate behavioural change through market price effects. These instruments focus on average compliance in which achieving the environmental goals are the central focus. Human activities often result in negative external costs in the form of pollution or the exhaustion of commodities. For example, Dutch water purification companies suffer from pollution of the Rhine by French potash mines. The Dutch purification companies have to incur high costs in extracting all the salt from the water. These purification costs are not relevant to the French potash mines, as they do not pay them. The costs are thus not paid by the polluter, but by the Dutch purification companies and thus by the users of drinking water.

This is a typical example of a case in which negative external costs are not internalised. Market-based instruments aim to internalise these negative external costs by allowing the polluter and the user to pay for these costs. Consequently, market-based instruments are more likely to respect the polluter pays principle and the principle of cost recovery, which are both mentioned in Article 9 of the WFD. The polluters are given the choice of either adopting emission reduction measures or paying the price of their pollution. The indirect regulation instrument thus stimulates actors to reduce their pollution or emissions in an efficient way.<sup>47</sup>

Since indirect regulation is potentially more efficient than direct regulation, it is important to look beyond the classical guiding instruments and to explore what use can be made of economic instruments in the Netherlands. Therefore, this research will focus on indirect regulation instruments.

### 4.3. Options for Economic Instruments in the Netherlands

The Dutch Centre for Water Management has pointed to several instruments which could be introduced in Dutch water policy. An overview is presented in Figures 3, 4 and 5 below, each focusing on a separate water-related problem area. The instruments indicated in italics will be part of this research.

<b>Water Nuisance</b>
Stimulants for water salvage in urban areas (cover charge)
Financial compensation for accepting water nuisance in the agricultural sector
Funds for water salvage
<i>Financial compensation schemes for the creation of wet buffer strips</i>
Investment funds with competition

**Fig. 3**

<b>Water scarcity</b>
Making water chain tariffs more variable
Extending ground water taxes and levies to smaller additional actions
Funds for water salvage
Investment programmes with competition
<i>Tradable water rights</i>

**Fig. 4**

<sup>46</sup> Smedt, P. de, Maes, F., 'Naar een markt voor verhandelbare lozingsrechten? Een verkennend onderzoek', Maritiem Instituut Universiteit Gent (geen datum vermeld, zie [www.steunpuntmilieubeleidswetenschappen.be](http://www.steunpuntmilieubeleidswetenschappen.be)), p. 20-21.

<sup>47</sup> *Ibid*, p. 11.

<b>Water Quality</b>
Charging the water leisure sector
Tagging tourist taxes
A (blue) fund for water sports
Landscape funds
Levies on inland shipping
Price incentives for more green in cities
Voluntary compensation arrangements
Investment programmes with competition
Tradable water rights for cool water discharges
<i>Pollution levies for diffuse sources</i>
<i>Compensation for additional measures</i>
<i>Tradable emission rights</i>
Public-Private cooperation in sustainable agriculture

**Fig. 5.**

The above-mentioned instruments have not yet been implemented in the Netherlands since more research is needed in order to establish whether it is feasible to introduce these instruments. The Dutch Directorate General for Water has pointed out that its interests specifically extend to using financial compensation schemes for the creation of wet buffer strips, pollution levies for diffuse sources in combination with compensation for farmers who take additional measures and a system of tradable water rights based on the quality and quantity of water. Therefore, these instruments will be investigated in separate case studies which can be found in sections 5, 6 and 7.

#### **4.4. Conclusion**

Now that the WFD has full effect, Member States have to look into the possibilities of introducing economic instruments in the field of water in order to ensure an efficient use of water resources. It is thought that economic instruments in general allow participants to make their own decisions on pollution reduction measures, which can have a positive effect on sustainable development in the field of water. Thus, in an economic sense, these instruments are more effective than direct regulatory instruments. On the European level one can find references to the use of economic instruments in, for example, the Green Paper on Market-Based Instruments, the Communication on Water Scarcity and Droughts and in Article 9 of the WFD. It is however the task of the Member States to put the instruments into effect.

There are a number of economic instruments which could be applied; however, three specific instruments have been highlighted by the Dutch DG for Water for further research. These economic instruments will be discussed in the case studies below. The first case study in section 5 will look at compensation for the creation of wet buffer strips. Secondly, pollution levies for diffuse sources will be discussed in the second case study in section 6. This case study will also look into the possibility of compensating farmers for performing eco-system services with the yields of those levies. Lastly, section 7 will look at the subject of tradable water rights and tradable water pollution rights.

## **5. Financial Compensation for the Creation of Wet Buffer Strips**

The Netherlands has succeeded in tackling water pollution emanating from industrial sources and households. Now, the remaining problem is the agricultural sector. Therefore, in order to obtain good water quality, this sector should be the main focus when it comes to initiatives with respect to environmentally friendly measures. However, the agricultural sector is very influential at the political level which has resulted in a political resolution<sup>48</sup> stating that the agricultural sector is already doing enough to benefit water quality under the Nitrates Directive and, therefore, this sector does not have to incur additional costs in attaining the obligations under the WFD.

Hence, the Netherlands is looking for a solution which will ensure that, despite this resolution, the agricultural sector will take measures without farmers having to incur additional costs. One of the possibilities pointed out by DG Water in the Netherlands is to allow the water boards to take over the management of some areas of agricultural land from farmers. The water boards will construct wet buffer strips on agricultural land and they will pay a management fee to the farmer. In this way, the farmer does not have to incur additional costs, while the obligations of the WFD are still attained. For the water boards this will have several advantages. Alongside improving water quality in line with the WFD and the Nitrates Directive, they also create room for water retention<sup>49</sup>, increasing the amount of nature areas<sup>50</sup> and improving water safety.

Before implementing such a system, one has to ensure that several European laws and rules are not breached. Therefore, this section will look at the possibilities of introducing the economic instrument of financial compensation for farmers and will explore whether these measures can be taken while staying within the limits of EU principles, laws and regulations.

### **5.1. Financial Compensation in a Nutshell**

In this case study two forms of financial compensation will be discussed. Firstly, farmers will receive compensation from the water boards which will use the agricultural land for the creation of wet buffer strips. The other version of financial compensation entails that the government compensates farmers for creating the wet buffer strips themselves. Financial compensation in these cases is used to stimulate farmers to make environmentally friendly choices, which will help to improve water quality. Compensation will thus be used to reduce emissions and for helping farmers to realise more reduction measures than what they are obliged to take according to the current laws. This subject will be discussed in more detail below.

### **5.2. The Problem**

The agricultural sector is well known for using (artificial) fertilisers and manure which enter surface water and groundwater and damage the surrounding ecosystems. However, the Dutch agricultural sector has been stimulated from the 1950s onwards to intensify production in order to make the EU self-sufficient. Now, this sector is being blamed for the pollution that is the direct result of this intensification. With the introduction of the Nitrates Directive, the agricultural sector has been forced to take measures which will diminish ground and surface water pollution.

In order to improve the quality of surface waters farmers can adjust fertilisation, introduce fertiliser-free zones near watercourses and manage the surrounding shores. The problem is that farmers will not voluntarily take environmentally friendly measures which only cost them money without getting anything in return. Although some environmentally friendly measures have to be taken in any event because they fall under the good agricultural practices of the Nitrates Directive, and under Directive 2006/11/EC on dangerous substances, farmers are not stimulated to take more measures than are necessary. Furthermore, the Van der Vlies resolution has now made it impossible in the Netherlands to force farmers to incur additional costs when implementing the WFD. Therefore, it is necessary to explore other possibilities.

Yet, it has to be kept in mind that financial compensation could be viewed by the EU as illegal state aid. Therefore, it is necessary to know exactly what is obligatory under EU law.

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<sup>48</sup> See the Van der Vlies Resolution in Annex III infra.

<sup>49</sup> This is in line with the goals of WB 21<sup>st</sup> century.

<sup>50</sup> This is in line with the goals of Natura 2000.

For example, farmers cannot receive compensation for any measure they are already obliged to take under EU legislation. Therefore, it is necessary to investigate whether this economic instrument is in line with the European principles of the EC Treaty, the European obligations as laid down in secondary legislation and the European rules regarding state aid. There are many factors which need to be taken into account before an EU Member State can give financial compensation to a particular sector. This applies to all sectors, but even more so for the agricultural sector, which is subject to a great variety of rules regarding subsidies. Therefore, the following subsections will look at the obligations in order to find out what measures could receive compensation without being illegal state aid.

### **5.3. The Water Framework Directive and Compensation for Wet Buffer Strips**

The goals of the WFD are, amongst others, goals which can be found in other water-related Directives. These Directives have been incorporated into the WFD (the old water-related Directives expire one by one, with the last ones due to expire in 2013). As previously mentioned, the WFD has as its main goal to reach good water quality by 2015 and the Member States have to take measures to attain this goal. The WFD has some very important points which should be respected when taking measures to improve water quality. For example, the polluter pays principle is central to the WFD, as well as reaching a good chemical and ecological state of water and the obligatory measures as mentioned in Article 11 of the WFD.

One could argue that giving water boards the task of improving water quality and paying farmers compensation for their land is not in line with the polluter pays principle. Manure and fertilisers which enter the water are used by the agricultural sector and this sector should, in line with the polluter pays principle, be faced with the costs of this pollution and take measures to reduce pollution. By allowing another organisation do this, this principle does not seem to be respected. However, the Van der Vlies Resolution does not allow farmers to incur additional costs in implementing the WFD. One could therefore even state that the resolution is not in line with the fundamental principles of the EC Treaty and the WFD, which could imply that the Dutch government will not be allowed to keep the resolution in place.

On the other hand, one could also state that the agricultural sector has always been stimulated under EU agricultural policy (the CAP) to become self-sufficient, which inevitably made this sector the largest polluter of water. From this point of view one could argue that it is not only the task of the agricultural sector to tackle water pollution, but also that of the EU and the Member States themselves. Reducing the impact of pollution caused by the agricultural sector will not be specifically beneficial to the agricultural sector alone. Instead it will result in many environmental benefits which will be largely enjoyed by society as a whole. Cleaner water has higher environmental values and it increases recreational amenity. This idea is already reflected in European agricultural programmes such as the POP programmes, which will be discussed later on.

Nevertheless, the latter arguments in favour of assisting the agricultural sector in reducing their water pollution could just as well be used for the industrial sector. However, water pollution caused by the industrial sector has been tackled, and the cost of pollution from industrial sources has been paid and is being paid for by the sector itself. By assisting the agricultural sector in taking measures to reduce its pollution, it may seem unfair in comparison to the way the industrial sector has been tackled. Furthermore, it raises the question of who will then pay the costs of tackling pollution from agricultural sources. Yet, the agricultural sector is now the remaining source to significantly affect water quality and, up until now, the Dutch government has not succeeded in reducing this pollution. Therefore, assisting the agricultural sector with this task seems to be a last resort. However, assisting the agricultural sector should remain within the limits of the law.

Article 9 of the WFD mentions cost recovery. The costs of the construction of wet buffer strips will be paid for by the water boards. They will retrieve these construction costs from the users of water in their district. Households, industry and farmers have to pay taxes and levies to the water boards which can be spent on constructing buffer strips. In general, the cost recovery of the water boards is approximately 100 %. Thus, the principle of cost recovery is respected.

The WFD also mentions water scarcity in Article 1, for example Article 1 (e) states that one of the goals of the WFD should be to contribute to mitigating the effects of floods and droughts. Although the environmental goals in Article 4 only touch upon water quantity, this

is definitely also important for the WFD. The wet buffer strips will contribute to water retention. The water stored in the wet buffer strips could be useful for periods of drought. Furthermore, the wet buffer strips increase biodiversity and are therefore also popular with nature organisations.

To summarize, it is important that compensation for farmers is not given to farmers for fulfilling the WFD. Creating wet buffer strips is not a measure which is obligatory under the WFD. However, one can conclude that these measures do indirectly benefit water quality, especially regarding the good ecological status of water. The development of nature and landscape values result indirectly in achievements which are in line with the WFD but they are not taken for that purpose. Therefore, one could state that the proposed economic instrument does not conflict with the WFD and could even lead to positive results in line with the obligations of the WFD. But there are other Directives which have to be taken into account, the most important of which is the Nitrates Directive, which will be discussed below.

#### **5.4. The Nitrates Directive<sup>51</sup> and Compensation for Wet Buffer Strips**

The Nitrates Directive has several obligations for farmers. It is therefore important that farmers will not receive any form of compensation for executing these obligations as it will be seen as a distortion of competition in the EU. So, it is important to go through the Nitrates Directive and to look at its obligations for farmers.

The Nitrates Directive has two main objectives formulated in Article 1, namely to reduce ground and surface water pollution by nitrates from agricultural sources and to prevent further pollution. The underlying reason for this aim is to secure the water quality which is necessary for the production of drinking water and to protect aquatic ecosystems. According to the European Commission, nitrates from agricultural sources are the main reason for the high level of nitrates in ground and surface water. Therefore, the focus lies on the agricultural sector in order to ensure that fewer nitrates enter the surface water and groundwater.

Article 3 of the Nitrates Directive obliges Member States to identify waters affected by pollution and waters which could be affected by pollution if action in line with Article 5 is not taken. In accordance with Article 5 of the Directive the Member States are obliged to formulate action programmes. Action programmes must include the obligatory measures mentioned in Annex III of the Directive and concern prohibition periods for the application of certain types of fertiliser, the capacity of manure storage containers, limitations on the application of fertiliser use, taking into account factors such as soil conditions, soil types, slopes, rainfall, land use and the amount of nitrogen in the soil. The Netherlands has decided to identify the whole country as the area which could be affected by nitrates pollution, which implies that the Nitrates Directive applies to the entire country and the action programme is thus obligatory all over the country.

In accordance with Article 4 of the Directive, Member States are obliged to formulate codes of good agricultural practice. The measures taken in line with the codes of good agricultural practice have to be taken independently from the question of whether or not the Member State in question has waters within its territory with high levels of nitrates. In those areas which have been designated by the Member States as vulnerable zones, the codes of good agricultural practice will be obligatory instead of voluntary for all farmers. Since, as stated, the Netherlands has appointed all of the country as a vulnerable zone, it implies that the codes are obligatory in the whole territory of the Netherlands. The code of good agricultural practice has to include the subjects laid down in Annex II and cover activities such as application periods, fertiliser use near watercourses and on slopes, manure storage methods, spreading methods and crop rotation and other land management measures. The codes of good agricultural practice are implemented in the Netherlands by the Open Cultivation and Stock Farming (Discharges) Decree (*Lozingenbesluit Open Teelt en Veehouderij (LOTV)*) of 27 January 2000<sup>52</sup>. The agricultural sector therefore has to live up to the codes of good agricultural practice.

In Annex II of the Nitrates Directive it is laid down what topics should be covered by the codes of good agricultural practice. Good agricultural practices should also include the conditions for the application of fertilisers near watercourses (A.4.) and it has to be ensured that water pollution from run-off and the downward water movement beyond the reach of

<sup>51</sup> Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, OJ L 327 of 22.05.2000.

<sup>52</sup> In 2009 the LOTV was revised by 'het Activiteitenbesluit' (the Activities Decree)...

crop roots in irrigation systems is prevented (B.4.). These practices thus also point to the use of fertiliser-free zones. However, the size of these zones is not determined in the codes.

In the Netherlands the Nitrates Directive has been implemented both too late and incorrectly. The Netherlands had implemented action plans in accordance with the Directive; however, the plan did not fulfil the criteria contained in the Directive. The MINAS system (mineral accounting system) used by the Netherlands was not approved by the Commission. Although the goals were attained with the MINAS system, the way in which they were attained was not approved. This resulted in a critical judgement by the European Court of Justice in 2003.<sup>53</sup> As a result the Netherlands has adapted its rules on fertilising substances.

When it comes to the application of fertiliser near watercourses, the Netherlands did not have any measures in place at the time of the ECJ's judgement, because it was not feasible to introduce these norms due to the geographical conditions of the Netherlands. However, after the judgement, new rules on fertilizer-free zones along natural water bodies came into being, incorporated in Articles 13, 14 and 16 (2) of the LOTV. These fertiliser-free zones are implemented in the Netherlands as vegetation-free zones. When there is no vegetation, there is no need for fertilizers. In addition, in this way it is easier to manage, control and monitor.

Articles 13, 14 and 16 (2) of the LOTV mention the length of the fertiliser-free zones for each crop. The fertiliser-free zones are defined in Article 1 (ee) of the LOTV as the strip of land measured from the mezzanine of the surface water until the first crop, with the exception of grassland. The length of these zones differs per crop and varies from 9 meters for fruit farming to 25 cm for grassland. The level of surface water which is taken is the summer level. The idea behind these fertiliser-free zones is to avoid the direct fertilisation of waterways and water banks.

According to the European Commission, in order to attain the obligations of the Nitrates Directive, EU Member States uphold fertilizer-free zones of at least 5 meters measured from the mezzanine of the surface water until the first crop. However, the Netherlands applies smaller fertilizer-free zones because of several factors which will make the application of the fertilizer-free zones less effective in the Netherlands.<sup>54</sup> The Netherlands makes limited use of fertiliser-free zones, since due to the geography of the Netherlands it will have limited success. It has been pointed out in certain research<sup>55</sup> that fertiliser-free zones are modestly effective and will achieve a 15-25% emission reduction when the zones are 3-5m broad. Fertiliser-free zones are most effective on slopes, therefore it is questionable whether these zones will be effective in a flat country such as the Netherlands.

Furthermore, the Netherlands is constantly drained because it is largely located below sea level. This greatly influences the flow of groundwater. The Netherlands has many artificial surface waters which are necessary to drain the country. Lastly, applying fertiliser-free zones of at least 5 meters would also greatly influence the total amount of arable land. The photograph in figure 6 below clearly shows this. These are all reasons for the European Commission to allow a limited broadening of the fertiliser-free zones in the Netherlands. The Netherlands has decided to make a distinction between high and low-lying land. In the high parts it is obligatory to have a fertiliser-free zone of 5m along natural water bodies, while in the low-lying parts this is not obligatory.

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<sup>53</sup> Case C-322/00, Commission of the European Communities v Kingdom of the Netherlands, OJ C 335 of 25.11.2002.

<sup>54</sup> [www.vrom.nl/get.asp?file=docs/kamerstukken/Mon11Apr20051600130200/Annex1DerogationMemorandum.doc](http://www.vrom.nl/get.asp?file=docs/kamerstukken/Mon11Apr20051600130200/Annex1DerogationMemorandum.doc)

<sup>55</sup> Schröder et al., 'Limits to the use of manure and mineral fertilizer in grass and silage maize production in the Netherlands', PRI Agrosysteemkunde, 2005 (Report by Plant Research International 93).



**Fig. 6.**<sup>56</sup>

The construction of fertilizer-free zones is thus obligatory under the Nitrates Directive, as they have to be laid down in the codes of good agricultural practice. Wet buffer strips can be seen as a similar construction to fertilizer-free zones. Namely, it is a patch of agricultural land bordering watercourses, on which fertilization is not allowed, since it has environmental purposes. Therefore, the wet buffer strips could be seen as an alternative to fertilizer-free zones, and therefore they have to respect the rules laid down in the Nitrates Directive when it comes to the size of the fertilizer-free zones.

However, the size of these zones is not predetermined in the Nitrates Directive. Nevertheless, the European Commission has stated that in most Member States these zones have to be at least 5 meters wide. Although 5 meters is not laid down in EU law, and is thus not strictly binding, it is a guideline for the Member States and they should therefore take the Commission's statement into account. Namely, it implies that the Commission is satisfied with the Member States when they apply fertilizer-free zones of at least 5 meters and will not start procedures against those Member States for implementing the Directive incorrectly. Member States could still apply smaller fertilizer-free zones, but they will run the risk that the Commission is not satisfied.

The Netherlands has explained why fertilizer-free zones of 5 meters will not be effective in that country. The Netherlands can prove that in its particular case, for example, fertilizer-free zones of 1 meter can also be effective. Therefore, the Netherlands has been allowed to construct smaller fertilizer-free zones. One can expect that in the future the Commission will not change its mind about the Dutch situation as scientific research has clearly indicated why it will not be effective for the Netherlands to apply the wider fertilizer-free zones. Therefore, one can safely state that the Netherlands does live up to the obligations of the Nitrates Directive.

Hence, the Nitrates Directive does require farmers to create fertilizer-free zones in order to improve water quality. However, the size of the fertilizer-free zones has not been predetermined in the Nitrates Directive. This implies that once the width of the fertilizer-free zones has been laid down in Dutch legislation (the LOTV), every additional meter of wet buffer strip on top of what is obligatory in the law could be constructed by the water boards. The wet buffer strips can thus be seen as an additional measure to the fertilizer-free zones. One can thus state that the economic instrument of creating wet buffer zones by the water boards for which farmers receive financial compensation would not be in breach of the Nitrates Directive.

To be exact, farmers can receive compensation for ecosystem services which they perform (taking land out of production for the creation of a wet buffer strip can be seen as an ecosystem service performed by the farmer). The central principle behind the payments is the

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<sup>56</sup> Source: [http://www.agripress.be/STUDIOEMMA\\_UPLOADS/foto/artikel/72490\\_648\\_1147104267213-polder.jpg](http://www.agripress.be/STUDIOEMMA_UPLOADS/foto/artikel/72490_648_1147104267213-polder.jpg)

principle of cross-compliance, which is important in the Common Agricultural Policy (CAP). Cross-compliance links direct payments to farmers to their respect for environmental and other requirements set at the EU and national levels. Payments or compensation are therefore different from a subsidy, as compensation and payments are only given to farmers when they actually do something in return for the money they receive.

At first sight, it also seems possible for farmers to construct wet buffer strips themselves instead of allowing the water boards do this. The Netherlands lives up to the obligations of the Nitrates Directive and, therefore, every measure which is taken in addition to the obligations under the Nitrates Directive (and which are therefore not obligatory under EU law) could receive compensation. When the fertilizer-free zone of grassland is 25 cm as laid down in the LOTV, the farmer can receive compensation for every additional meter of buffer strip in addition to that 25 cm (i.e. when the wet buffer strip is 1.25m, the farmer pays for the 25 cm himself, and the water boards will pay for the 1m) Yet, there are more factors which should be taken into account before compensation can be given. This will be discussed in section 5.7.

### **5.5. The Dangerous Substances Directive<sup>57</sup> and Compensation for Wet Buffer Strips**

This Directive has as its purpose to protect the aquatic environment of the Community against certain dangerous substances by taking on emissions from discharges of certain polluting substances and immissions on the basis of predefined quality demands. This Directive is part of the broader terrain of EU water law and environmental law. According to this Directive it is forbidden to discharge certain polluting substances into surface water without a permit. The polluting substances are divided into two lists. The first is the black list (list I), of which the discharge should, in principle, be terminated. Every discharge of a black-list substance needs a permit and the EU links discharge norms to the water quality objectives. The second list is the grey list (list II) of which the discharges have to be reduced. Nitrate is also on this list. The permits for these discharges have to be issued by the individual Member States. The Member States also have to link the discharge norms to the water quality objectives themselves.

The Netherlands, however, failed to implement this Directive correctly and was ruled against by the ECJ in 2001. The black-listing of certain substances was not a very smooth process. From the 132 substances which were on the list at the beginning, only 18 substances were placed on the final black list. The EU was of the opinion that the substances which did not make it to the black list automatically belong to the grey list. This entails that the Member States themselves have to link discharge norms with water quality objectives. However, the Netherlands was of the opinion that these 114 substances are candidate substances for the black list unless the EU specifically places them on the grey list. Nevertheless, the ECJ decided that the EU was right in this matter and that the substances which did not make it to the black list are automatically put on the grey list.

The scope of the definition of a discharge under this Directive is very broad. This can be concluded from, for example, Case C-231/97<sup>58</sup> and Case C-232/97<sup>59</sup>. A discharge covers all ways in which polluting substances are discharged directly or indirectly into surface waters. These discharges are thus in principle forbidden unless a permit has been obtained. As long as discharges are taking place the obligations under this Directive have not been fulfilled. The Netherlands does not work with permits for all discharges as described in the Directive, but instead uses general rules. Also, the agricultural sector is not subject to permits for its discharges into ground and surface waters. Therefore, one could argue that the Netherlands does not fulfil this Directive.

The main problem when it comes to this Directive is that the wet buffer strips which will be constructed could be seen as an alternative to a permit to discharge. That is to say that without the wet buffer strips, fertilisers and other polluting substances will enter surface waters. This is seen as a discharge and discharges are not allowed without a permit. Thus, if

<sup>57</sup> Directive 2006/11/EG of 15 February 2006 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, OJ L 64 of 04.04.2006.

<sup>58</sup> Case C-231/97 - *A.M.L. van Rooij v Dagelijks bestuur van het waterschap de Dommel* is available at: [http://eurlex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!CELEXnumdoc&lq=en&numdoc=61997J0231](http://eurlex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lq=en&numdoc=61997J0231)

<sup>59</sup> Case C-232/97 - *L. Nederhoff & Zn. v Dijkgraaf en hoogheemraden van het Hoogheemraadschap Rijnland* is available at: [http://eurlex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!CELEXnumdoc&numdoc=61997J0232&lq=en](http://eurlex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&numdoc=61997J0232&lq=en)

farmers would be compensated for an alternative to a permit, there is a possibility that the EU will view this as state aid. It is therefore necessary that farmers who receive financial compensation for providing ecosystem services should live up to the rules of this Directive.

However, one can see a development in the case law which tends to take the stance that the Dangerous Substances Directive may not be relevant for Nitrates. In cases C- 416/02<sup>60</sup> and C-121/03<sup>61</sup>, Advocate General Stix-Hackle delivered her opinion on the relevance of Directive 80/68/EEC on the protection of groundwater against pollution by certain dangerous substances. This case concerned nitrate pollution emanating from intensive pig farms. Nitrates fall under List II of Directive 80/68/EEC, which implies that Spain was obliged to conduct a prior hydrogeological examination. However, Spain failed to do this. Spain argued that it had already commissioned studies concerning hydrogeological conditions within the framework of the Nitrates Directive, as it believed that nitrates fell within the scope of the Nitrates Directive.

The Advocate General argued, just as she had done in Case C-416-02, that nitrates are not to be regarded as dangerous substances for the purpose of List II of the Ground Water Directive, but instead fall under the Nitrates Directive. Therefore, the Ground Water Directive did not apply to the case, and Spain was not obliged to conduct a prior hydrogeological examination. This ruling thus shows that it is very well possible that the same reasoning will be applied to the relevance of the Dangerous Substances Directive and that this Directive will therefore be irrelevant to nitrates pollution. Therefore, the Dangerous Substances Directive may not be of importance for this discussion. Yet, this is not completely certain and should be investigated in more detail.

## **5.6. Proposal for a Framework Directive on the Sustainable Use of Pesticides and Wet Buffer Strips**

The Thematic Strategy on the sustainable use of pesticides was adopted in 2006 by the European Commission, together with a proposal for a Framework Directive on the sustainable use of pesticides<sup>62</sup>. This Directive is still to be adopted; however, it does contain some points which are of importance to the creation of wet buffer strips.

The main reasons behind the adoption of the Thematic Strategy on the sustainable use of pesticides was that the current policies of the EU Member States on pesticides did not adequately address the actual use phase of the pesticides' life cycle, e.g. the temporary storage of pesticides at farm level. As a result, levels of pesticide residues have still not decreased in food and feed samples.<sup>63</sup>

However, what is most interesting for this research is the fact that it will also address water quality and the creation of wet buffer strips. Specific measures to protect the aquatic environment are mentioned in Article 10 of the Directive and it reads as follows;

1. Member States shall ensure that, when pesticides are used in the vicinity of water bodies, preference is given to:

(a) products that are not dangerous for the aquatic environment

(b) most efficient application techniques, including the use of low-drift application equipment.

2. Member States shall ensure that appropriate buffer zones, where pesticides must not be applied or stored, are established on fields adjacent to water courses, and in particular to safeguard zones for the abstraction of drinking water established in accordance with Article 7(3) of Directive 2000/60/EC.

The dimensions of the buffer zones shall be defined as a function of the risks of pollution and the agricultural characteristics of the area concerned.

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<sup>60</sup> Case C-416-02 *Commission vs Spain* OJ C 271/2.

<sup>61</sup> Case C-121/03 *Commission vs. Spain* OJ C 271/1.

<sup>62</sup> COM (2006) 373 final, Proposal for a Directive of the European Parliament and of the Council establishing a framework for Community action to achieve a sustainable use of pesticides, {SEC(2006) 894}, {SEC(2006) 914}, Brussels, 12.07.2006.

<sup>63</sup> <http://ec.europa.eu/environment/ppps/strategy.htm>

3. Member States shall ensure that appropriate measures are taken to limit the aerial drift of pesticides at least in vertical crops, including orchards, vineyards, and hops directly adjacent to a water course.

4. Member States shall ensure that application of pesticides is reduced as far as possible or eliminated if appropriate on or along roads, railway lines, very permeable surfaces or other infrastructure close to surface water or groundwater, or on sealed surfaces with high risk of run-off into surface water or sewage systems.

In accordance with this Article Member States are required to assure that farmers and other professional pesticide users pay particular attention to the protection of the aquatic environment through measures such as buffer strips and hedges along watercourses or other appropriate measures aiming at limiting drifts.

This Article thus mentions the creation of buffer strips in order to avoid that pesticides enter surface waters. The width of these zones is not specified, although it is stated that this can vary depending on the pollution risk which a certain kind of pesticide entails. It can thus be stated that when this proposal is adopted, it will become obligatory for the Member States to create buffer strips on agricultural land on which pesticides are used.

This could entail that, in some cases, farmers cannot be compensated for the creation of wet buffer strips since this is already obligatory in EU law. When a farmer only uses nitrates on his agricultural land, he will fall under the Nitrates Directive and therefore he can still be compensated. However, for farmers who also use pesticides on their land, the situation may be different. This may not yet be a problem since the proposal is still to be adopted; however, it is expected that the Directive will be adopted in the second semester of 2009 [is dat al gebeurd?].

### **5.7. State Aid and Wet Buffer Strips**

Providing farmers with financial compensation cannot be done just like that. A variety of rules have to be taken into account before compensation is not regarded as illegal state aid. State aid rules concerning the agricultural sector follow the general principles of competition policy, which belongs to the first pillar of the EU. Within this pillar the EC is the supranational body, which means that EU policies take precedence over national policies. The rules on state aid in the agricultural sector therefore have to be coherent with the Community's common agricultural and rural development policies and they have to be compatible with the Community's international obligations, such as the WTO Agreement on Agriculture. EC policy regarding state aid seeks to ensure free competition, an efficient allocation of resources and unity in the Community market, but at the same time respecting the international commitments of the EU. These different perspectives have resulted in some legal instruments which are only in force in the agricultural sector.

The European Commission has pointed out some of the main types of aid which the Commission can accept and the conditions attached to the granting of such aid. These include:

- aid granted in return for agri-environmental<sup>64</sup> undertakings given by farmers
- other forms of environmental aid,
- aid to compensate for handicaps in less favoured areas.<sup>65</sup>

In order to encourage the development of the agricultural sector, aid for investments in agricultural holdings may be authorised. Their objectives must be to reduce production costs, improve and reorganise production, improve quality, preserve and improve the natural environment, comply with hygiene and animal welfare standards and promote the diversification of agricultural activities.<sup>66</sup>

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<sup>64</sup> Agri-environmental undertakings are farming methods which are compatible with the protection of the environment and the upkeep of the countryside.

<sup>65</sup> [http://ec.europa.eu/agriculture/stateaid/index\\_en.htm](http://ec.europa.eu/agriculture/stateaid/index_en.htm)

<sup>66</sup> <http://europa.eu/scadplus/leg/en/lvb/l11082.htm>

When farmers are compensated for providing ecosystem services, e.g. to provide land to the water boards which will construct wet buffer strips on this land, those farmers receive compensation for measures which will improve the natural environment and the quality of that environment. Therefore, it could fall under aid which is accepted by the Commission. There are even special EU programmes which provide the agricultural sector with money in order to realise these objectives. This programme will be discussed below and it will be investigated whether that programme could also provide assistance to farmers involved in the creation of wet buffer strips.

### **5.8. POP Money for Ecosystem Services**

Farmers can receive money from the Rural Development Programme (*Plattelands Ontwikkelings Programma*) for the period 2007-2013 (hereafter POP2<sup>67</sup> programme). This programme is a European subsidy programme with a focus on strengthening the competition powers of the agricultural and the forestry sectors, increasing the quality of nature and landscapes and improving the liveability of the countryside and the diversification of the agricultural economy. The POP2 Programme is part of the Common Agricultural Policy of the European Union (hereafter CAP) from which the Netherlands will receive approximately € 486 million in the period 2007-2013. The European Commission has approved the current POP2 programme of the Netherlands subject to the condition that compensation does not exceed the maximum amount, which is set for the Netherlands at 2 billion euros.

In the Ecosystem Catalogue of 2007-2012 for the Netherlands it is mentioned what ecosystem services the Netherlands is planning to perform. The construction of and compensation for wet buffer strips is also mentioned and it is stated that from 2009 onwards the Netherlands will look at how POP2 can contribute to the realisation of the obligations under the WFD. Water quality and water quantity will benefit from the measures which will be taken in line with the POP2 programme, e.g. spreading knowledge on the environmentally friendly use of crop protection means and fertiliser prescriptions. The POP2 programme offers several management packages for farmers which they can choose and apply to their land. The management packages include issues such as shore management, for which farmers can receive money six times yearly. Since the catalogue for the period 2007-2012 has been approved by the Commission one can state that compensation which is laid down in this catalogue is not opposed to any European laws.

It would thus be possible to use POP2 money in order to stimulate the performance of ecosystem services by farmers. The measures for which they can receive compensation are laid down in the Catalogue for ecosystem services 2007-2012. However, compensation has limits and is subordinate to four principles mentioned by the European Commission. These four principles are:

- Compensation is only possible for ecosystem services which go further than what is obligatory under European law (including environmental and water law),
- Compensation is only allowed for public services which cannot be realised without compensation,
- The measures which receive compensation have to be verifiable and controllable,
- The amount of the compensation is limited to a maximum which is necessary to prevent any distortion of competition.

It is thus important to keep in mind that when farmers receive compensation for their services, they do have to perform ecosystem services which go further than what is obligatory under European law. This implies that they take more environmentally friendly measures than what they actually are obliged to do according to European legislation. In the case of wet buffer strips this implies that farmers only receive compensation for any additional meter on top of the meters of the fertilizer-free zone, which is already obligatory under the Nitrates Directive.

Furthermore, some services will never be performed if there is no compensation to help farmers with the additional costs which they would incur. Therefore, when it is certain that without compensation an ecosystem service would not be performed, compensation is allowed. Moreover, the Commission demands that the ecosystem services which are

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<sup>67</sup> This programme is adjacent to the POP1 programme, which covered the period 2000-2006.

performed by farmers are verifiable. This implies that it is necessary that when farmers take certain measures, these measures have to be checked. Lastly, there is a limit to the amount of compensation, which implies that once that limit is reached, parties cannot receive more compensation. This would thus imply that farmers who are engaged in the performance of ecosystem services will be limited. Once the amount of compensation the Netherlands is allowed to distribute has reached the limit, other farmers who want to engage in the performance of ecosystem services will no longer be able to apply for compensation.<sup>68</sup>

The catalogue of ecosystem services is very helpful when it comes to rules regarding compensation for farmers, as the catalogue mainly focuses on farmers. This is due to the fact that especially compensation for entrepreneurs could be seen as state aid. As has been stated in the previous section, state aid is one of the most important obstacles when it comes to compensating farmers for the performance of ecosystem services. A Regulation which also applies to compensation for farmers will be discussed below.

### **5.9. Support for Rural Development Regulation<sup>69</sup> and Ecosystem Services**

Council Regulation 1698/2005 applies to the POP2 programme since it is a rural development programme. This Regulation lays down under which conditions subsidies or financial compensation can be given to farmers. Article 2 of the Regulation states that the European Agricultural Fund for Rural Development (EAFRD) shall contribute to the promotion of sustainable rural development throughout the Community in a complementary manner to the market and income support policies of the common agricultural policy, the cohesion policy and the common fisheries policy. The Regulation has three objectives which can be found in Article 3 and includes improving the competitiveness of the agricultural and forestry sector, improving the environment and the countryside and improving the quality of life in rural areas and encouraging the diversification of economic activities.

Member States should make a rural development programme which is subject to the approval of the European Commission. The programme should complement other Community policies and it should comply with all Community legislation. The national plan has to ensure that aid for rural development is consistent with the Community strategic guidelines. The content of the national plan has to be in line with Article 11 of the Regulation. The Dutch POP2 programme fulfils these demands as it has already been approved by the Commission and therefore does not oppose any EU legislation.

The idea of using financial compensation for the realisation of ecosystem services falls under Section 2 of the Regulation, dealing with the improvement of the environment and the countryside. Article 36 of this Regulation deals with these subjects stating that support which falls within this category has to aim at the sustainable use of agricultural land and also includes support for non-productive investments (Article 36 (a) (iv)). In situations in which farmers are compensated for taking agricultural land out of production, it is possible that ecosystem service strips can be seen as non-productive investments, e.g. the land will no longer be productive.

Article 41 (a) states that support for non-productive investments shall be granted for investments linked with the achievement of commitments undertaken pursuant to the measure provided for in Article 36 (a) (iv) or other agri-environmental objectives. In addition, Article 41 (b) states that support shall be granted for on-farm investments which enhance the public amenity value of a Natura 2000 area or other high nature value areas to be defined in the programme. Nevertheless, it is not very likely that all wet buffer strips will become part of Natura 2000 areas.

This Regulation clearly states that support can be given to non-productive investments, of which financial compensation for the creation of wet buffer strips is evidently an example. In addition, the Netherlands can argue that in some cases the creation of the wet buffer strips is also important for Natura 2000 as it will create and enhance landscapes with higher natural

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<sup>68</sup> This is a common problem as far as compensation is concerned; the idea is thus that farmers can apply for compensation until there is no more money left. This means that it will not be possible to compensate all farmers and thus that not all farmers will be engaged in the performance of ecosystem services. (Interview with Nicolaas van Everdingen, who is involved in the creation of wet buffer strips together with farmers in the area around Amsterdam in cooperation with *Waternet* (14/09/2009)).

<sup>69</sup> Council Regulation (EC) No. 1698/2005 of September 2005 on Support for Rural Development by the European Agricultural Fund for Rural Development (EAFRD), OJ L 277, 21.10.2005.

values. This will benefit not only those farmers who achieve their obligations under EU Directives, but also nature in general as flora and fauna will become more diverse. Moreover, also the leisure sector can enjoy a more attractive countryside.

### **5.10. Discussion**

After having read the previous sections, there are several points of discussion concerning the question of whether it is possible to introduce the instrument of financial compensation for farmers who allow water boards to manage pieces of their agricultural land in order to construct wet buffer strips along the edges of that land.

It has been shown that it is very important that the economic instruments which are going to be used respect Community legislation. Overall, one could state that the previous sections have shown that the amount of obstacles which would stand in the way of the introduction of this instrument is rather limited. Nevertheless, there are several points which require attention for the future development of this instrument.

Firstly, the polluter pays principle is central to the WFD. It is possible that the instrument does not meet the requirements of this principle. It is clear that, although the Netherlands does live up to its obligations under the Nitrates Directive, the agricultural sector is still responsible for the significant pollution of water. Allowing other parties (the water boards) to reduce that pollution, instead of forcing the agricultural sector to take those measures itself, does not seem to be in line with the polluter pays principle. Yet, the Van der Vlies Resolution does not allow more measures to be taken by the agricultural sector which would lead to an increase in costs for this sector. It is questionable whether this resolution is compatible with the polluter pays principle. Nevertheless, since nothing has been done about this resolution on the European level, the Dutch policy can still continue.

In line with the Nitrates Directive, Dutch farmers are obliged to construct fertilizer-free zones. The wet buffer strips may be seen as alternatives to the fertilizer-free zones. When this is the case, financial compensation can be seen as illegal state aid. Nevertheless, as long as only compensation is given for any additional measures, thus any measure taken by the farmer (or the water board) over and above what that farmer is obliged to do under EU law, it will not be seen as illegal state aid. As long as this rule is respected, farmers can receive compensation from the water boards for taking a part of their land out of production.

However, it has to be kept in mind that the Netherlands does not apply the suggested 5-meter fertilizer-free zone. The fertilizer-free zones in the Netherlands are much smaller. Although the Netherlands has sufficiently explained why it does not apply the 5-meter zone, there could be a point in time when the Commission finds that the Netherlands is not sufficiently fulfilling its obligations under the Nitrates Directive. If this should be the case, farmers who receive compensation for additional meters on top of, for example, the 25 cm of grassland, may no longer be allowed to receive compensation. This is a risk which is always present when dealing with European law. The Commission may change its mind on a particular point which will affect the current way of dealing with certain obligations.

A point for discussion is that the European Commission could state that now that the water boards have created the wet buffer strips, that land is no longer part of the farmers' agricultural land and, therefore, the farmers in question will be obliged to construct fertiliser-free zones starting at the end of the wet buffer strip. However, this does not seem to be very likely as the fertilizer-free zones are measured from the mezzanine of the water until the first vegetation. This implies that when a buffer strip is created, the fertilizer-free zone will still be measured from the mezzanine of the water. As long as the prescribed distance under the law is respected, this should not be a problem. Thus, they have a fertilizer-free zone in place and only receive compensation for additional measures.

Lastly, it could even be possible that once the buffer strips have been created, the agricultural land no longer borders on water (this depends on the kind of buffer strip created). Once agricultural land is not adjacent to water, there is no need to have a fertilizer-free zone.

It is also possible for the farmer to construct the buffer strips himself and receive compensation for this ecosystem service. Naturally, farmers can only receive compensation for every additional meter on top of what is obliged under EU law. Yet, it has to be determined how farmers can be compensated for these measures. Financial compensation is restricted under a number of rules and laws in order to avoid state aid and the distortion of competition. Nevertheless, this section has shown that there are still possibilities to compensate farmers, and with the instrument of compensation for wet buffer strips, the rules

laid down in the related Directives are respected. Farmers do provide ecosystem services in return for money, namely to provide the water boards with some parts of their land or by constructing wet buffer strips themselves. Thus, farmers actually perform a service for which they receive money. This is not forbidden under state aid rules. This is very different from subsidies, which farmers receive without doing anything extra in return.

One aspect which could form a problem is the obligations under the Dangerous Substances Directive. This Directive requires permits for discharges into the aquatic environment. The Netherlands does not have such a permit system in place and the construction of wet buffer strips could be seen as an alternative to these permits; receiving money for an alternative could be seen as illegal state aid. However, it is still questionable whether the Dangerous Substances Directive applies, since the discussion concerns nitrate pollution. Case law has shown that it is likely that the Dangerous Substances Directive is not relevant for nitrate pollution, as nitrates possibly only fall under the Nitrates Directive.

Lastly, it has to be kept in mind that a proposal is waiting to be adopted which requires farmers to construct buffer strips when they use pesticides. Once this proposal is adopted, it will mean that farmers who use pesticides, and thus are obliged to construct wet buffer strips under EU law, can no longer receive any compensation to cover the construction costs.

### **5.11. Conclusion**

Introducing the economic instrument of compensation for farmers who allow water boards to create wet buffer strips on the shores of their land could form an interesting choice for solving the problems with water quality as a result of pollution coming from agricultural sources. This section has shown that this instrument could be applied in the Netherlands under several conditions.

Farmers can receive money from the water boards for every additional measure they take on top of what is legally obliged under Community law. As long as this rule is respected farmers can receive compensation from either water boards who construct the wet buffer strips on their land or for creating the buffer strips themselves.

Yet, the financial means for compensation are limited. It could be possible when the instrument becomes very popular with farmers at a certain point the financial means will no longer be sufficient to compensate all farmers. This instrument may therefore be inappropriate to tackle water pollution in the entire country, and only in limited areas will it be effective.

All in all, this instrument seems a very interesting addition to the current instruments used in the Netherlands. Furthermore, it respects the Van der Vlies Resolution, which ensures that using this instrument will not result in resistance from the agricultural sector or from the political level.

Nevertheless, it has to be kept in mind that, perhaps soon, wet buffer strips will have to be constructed by those farmers who also use pesticides alongside nitrates. Once this is the case, these farmers may no longer receive compensation, as it has then become obligatory and it will therefore be seen as illegal state aid. However, this could be seen as a common risk when working with European obligations, as Brussels may decide something which could negatively affect the current way of dealing with such obligations.

## **6. Pollution Levies for Non-Point Sources of Pollution**

It has already been pointed out that the agricultural sector is one of the largest polluters of surface waters, since pollution from industrial sources has been reduced significantly over the years. In order to reach good water status by 2015 it is thus necessary to get the agricultural sector involved in taking measures to improve water quality. However, agricultural holdings are in principle non-point sources. The pollution caused by these sources of pollution is very difficult to control, as it is difficult to discover which source has caused what amount of pollution in surface waters.

Since the Netherlands has a system of levies in place on all discharges by industrial sources and households, the idea has emerged to apply levies to discharges from agricultural non-point sources as well. However, this may be a politically sensitive issue. As stated before, the Van der Vlies Resolution does not allow the agricultural sector to incur any additional costs when implementing the obligations under the WFD. This political resolution may thus stand in the way of the introduction of the new levy, unless the yields of the levies are used to compensate farmers for performing ecosystem services. Nevertheless, looking at the current European obligations, it is possible to argue that allowing non-point sources to escape certain parts of the cost of their pollution could potentially breach EU law. This section will delve deeper into this subject and will explain why the introduction of levies fits within the current framework of EU law.

### **6.1. Levies in a Nutshell**

A levy is used by the government to impose a financial charge upon an individual or a legal entity. Levies discourage the use of certain products or services and generate yields. However, a levy is different from a tax. This means that the money which is collected with the levies has to be invested in the specific subject for which it is collected. Thus, levies on discharges will be used to cleanse any water affected by discharges.

This economic instrument could be applied to non-point sources, like the agricultural sector. Farmers have to take into account the emission limits of the Nitrates Directive and are thus not allowed to pollute more than this limit. Yet, the agricultural sector does not have to pay a levy for the rest of its non-point discharges. The industrial sector, however, does have to pay a levy for all of its discharges into water, which are mostly discharges from point sources. In order to stimulate a further reduction of emissions into water by the agricultural sector, it would thus seem a reasonable idea to introduce such a levy on the agricultural sector as well.

When farmers have to pay a pollution levy for their non-point source emissions, they are encouraged to pollute less, which would indirectly increase water quality. The levy could, for example, be differentiated which implies that farmers who can show that they have diminished their emissions will pay less levies. The levy, which is imposed by the government, assures that a price is attached to the pollution of the environment.<sup>70</sup>

### **6.2. The Problem**

Section 5 has shown that the Netherlands has a large agricultural sector which is responsible for a large part of surface water pollution. It is very difficult to control pollution from agricultural sources because they are diffuse sources of pollution, or to be more precise, non-point sources of pollution. Non-point source pollution is water pollution coming from diffuse sources of pollution, like polluted run-off from farms. Opposed to point sources of pollution, non-point sources of pollution are not one identifiable localised source of pollution, such as a factory discharging waste water into a river through a pipe. Instead non-point source pollution enters waters over a broad area of land. It is therefore also difficult to determine what part of the pollution is caused by which source. Nevertheless, since the agricultural sector is a large sector in the Netherlands, it is also the cause of a large percentage of the total non-point source pollution due to agricultural run-off and the application of fertilizers and pesticides.

In order to ensure that the polluters of surface waters pay the costs of their pollution, the Netherlands has established several levies which have been very successful in reducing pollution. This is in line with Article 9 of the WFD, which mentions the principle of the cost

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<sup>70</sup> *Supra* note 46, p. 28.

recovery of water services. Cost recovery entails that the price of water in the Member States should provide adequate incentives for users to use water resources more sustainably. When fulfilling the obligations of this article, the Member States shall take into account the social, environmental and economic effects of cost recovery in their country.

In the Netherlands, the costs of point source pollution are covered by a pollution levy (*verontreinigingsheffing*) which ensures that direct discharges into surface waters are taxed according to the amount of polluting substances they discharge. The agricultural sector also has to pay this levy on its direct discharges. Furthermore, all discharges into the sewage system are covered by a purification levy (*zuiveringsheffing*) and all users of the sewage system pay for sewage rights (*riool recht*). Additionally, some large industries have invested in building their own water purification installations. Lastly, all residents within a water board are pay levies to this water board (*waterschapsbelasting*). Thus far, the Netherlands has no levy for non-point sources in place.

The agricultural sector takes emission reduction measures in line with the Nitrates Directive. However, the remaining pollution caused by the agricultural sector is not covered by any levy, despite the fact that the pollution coming from agricultural sources is the main source of water pollution. In order to do something about this, the Netherlands would like to study the possibility of introducing a levy on non-point sources of pollution, thereby forcing the agricultural sector to take additional emission reduction measures.

However, there may be various obstacles, such as, for example, the Van der Vlies Resolution, which does not allow additional costs to be incurred by the agricultural sector when implementing the WFD. Yet, it has to be mentioned that European law has supremacy over national law. Thus when it appears from European law that it is in fact obligatory for Member States to charge the agricultural sector for its remaining water pollution, Member States have to do this. Looking at European law, one can find no strict obligation but many indications that charging non-point sources of pollution for the pollution they cause would fulfil the obligations as laid down in EU law. This will be discussed in the following section 7.

### **6.3. Levies for Non-Point Source Pollution and the WFD**

The polluter pays principle, together with the Commission's Communication on the use of price policy in the field of water management, are both leading aspects in European Water Policy. The polluter pays principle is explicitly mentioned in Article 174 of the EC Treaty. Furthermore, it can be found in the WFD in both the preamble and in Article 9. In the preamble the principle is mentioned in the general context of European environmental policy, but also in the context of the use of economic instruments. Article 9 further elaborates on the use of the polluter pays principle when applying economic instruments. Introducing a levy on non-point sources of pollution will be in line with the polluter pays principle, as it ensures that pollution has a price. If a farmer reduces his emissions, he will pay fewer levies, which means that cleaner working methods are rewarded.

Applying price policy has been advised by the Commission in its Communication on pricing and sustainable management of water resources.<sup>71</sup> This is reflected in the principle of the cost recovery of water services, which can be found in Article 9 of the WFD. This principle entails that the costs of all water services are recovered from the users of these services. Thus, when non-point sources of pollution fall under one of the water services, cost recovery should be applied to it.

According to the WFD, water services are all services which are provided to households, public institutions or any economic activity:

- (a) abstraction, impoundment, storage, treatment and distribution of surface water or groundwater,
- (b) waste-water collection and treatment facilities which subsequently discharge into surface water.

The WFD does not clearly include non-point sources of pollution. It is therefore unclear if this Article obliges Member States to apply cost recovery to these sources of pollution. Many Member States do not include non-point sources of pollution within their water services, and therefore they do not have to recover all the costs of non-point source pollution. In the Netherlands non-point source pollution is also not included in the five<sup>72</sup> water services.

<sup>71</sup> COM (2000) 477, not published in the OJ.

<sup>72</sup> Water services in the Netherlands encompass; waste-water collection, waste-water purification, quantitative regional surface water management, quantitative groundwater management and drinking water supply. Non-

The WFD also covers water use. Water use is defined in the WFD as water services together with any other activity identified under Article 5 and Annex II as having a significant impact on the status of water. In Annex II under 1.4 it is set out which activities have a significant impact on the status of water. It is stated that significant point source pollution, significant diffuse source pollution, significant water abstraction for urban, industrial, agricultural and other uses, the impact of significant water flow regulation, significant morphological alterations to water bodies and the identification of other significant anthropogenic impacts on the status of surface waters all significantly impact on the status of water. Non-point source pollution falls within the category of water use. The WFD does not have any rules in place which cover water use and therefore there is no explicit obligation in the WFD which states that cost recovery has to be applied to diffuse sources of pollution.

However, Keessen, Van Rijswick and de Vries (2009)<sup>73</sup> argue that Article 9 of the WFD should be read in such a way that the polluter should also pay for discharges into surface waters when there is no connected water service mentioned in the WFD. They state that this appears from the polluter pays principle and the principle that the costs of water services also include environmental costs. The ideas behind price policy also seem to indicate that polluters have to pay for their discharges in whatever form. Thus, it is concluded that the WFD states that in principle all costs of all discharges have to be recovered and therefore also the total costs of non-point source pollution.

Nevertheless, this vision is not followed on the European level. The European Commission is reluctant to start proceedings against Member States on the discussion on the exact interpretation of what water services encompass and when cost recovery should be applied. As long as this is the case, one can conclude that the Commission is not very certain when it comes to interpretation and/or is afraid that the Member States may not accept the definition. Therefore, the Commission leaves it to the Member States to determine what water services exactly encompass. When non-point sources of pollution are not included in the water services, cost recovery is not obligatory.

Another Article in the WFD which is important for non-point sources of pollution is Article 11 (3) (h), as it touches upon diffuse source pollution. This Article states how diffuse sources of pollution should be tackled and it lays down what the minimum compliance requirements are for Member States concerning diffuse sources which are liable to cause pollution. These shall consist of measures to prevent or control the input of pollutants. These controls may take the form of a requirement for prior regulation, such as a prohibition on the entry of pollutants into water, or prior authorisation or registration based on general binding rules where such a requirement is not otherwise provided for under Community legislation. These controls shall be periodically reviewed and, where necessary, updated. Thus, in accordance with the WFD, Member States do have to take measures to prevent or control diffuse sources of pollution.

Although some measures are suggested in the WFD, the goals are very broad and it is therefore largely up to the Member States how they will implement these obligations. There is no clear obligation mentioned in the WFD which states that non-point sources of pollution also have to pay the full cost of that pollution.

To summarize, the obligations as laid down in the EC Treaty and in the WFD could be interpreted as though they would favour the introduction of levies on all sorts of discharges, including discharges from non-point sources of pollution. Therefore, one could argue that introducing levies on this kind of pollution would be in line with the European rules and principles. However, since non-point source pollution is not officially seen as a water service, Member States are allowed to exempt it from the principle of cost recovery.

Furthermore, European legal instruments do not stipulate the use of taxes or levies. This is because tax systems are a national matter and should thus be taken care of by national governments. Although there is no explicit obligation to use levies, it could be stated that applying levies would actually be in line with the principle of cost recovery and the polluter pays principle. Keessen, van Rijswick and de Vries (2009) conclude that there are no European grounds for *not* applying levies to a particular sector.

Thus, there is no European obligation to make use of levies. However, one can argue that pollution caused by non-point sources like the agricultural sector falls within the definition of a

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point source pollution is not included in one of the five water services. However, this is not only the case in the Netherlands; in all EU Member States diffuse source pollution is not seen as a water service.

<sup>73</sup> *Supra* note 29, p. 11.

discharge. This definition is very broad and could therefore also include non-point source pollution. This will be discussed in section 7.

#### **6.4. The Dangerous Substances Directive and Non-Point Source Pollution**

The Dangerous Substances Directive (Directive 2006/11/EC) requires all Member States to have a permit system in place for discharging the substances mentioned on the grey and black list into water. The definition of a discharge is very far-reaching. This appears from two preliminary rulings in which the ECJ defined the term discharge.

The ECJ interpreted Article 1(2)(d) of the Dangerous Substances Directive concerning the definition of a discharge in cases C-231/97 and C-232/97. This Article states that a discharge is the introduction into the waters referred to in paragraph 1 of any substances in List I or List II of the Annex. The definition of a discharge is very broad.

In Case C-232/97 *Nederhoff v Dijkgraf en Hoogheemraden van het Hoogheemraadschap Rijnland*, the Court held, in paragraph 37, that the term discharge defined in Article 1(2) of Directive 75/464 (now Directive 2006/22/EC) is to be understood as referring to any act attributable to a person by which one of the dangerous substances listed in List I or List II of the Annex to the directive is directly or indirectly introduced into the waters to which the directive applies.

In this case steam precipitated on to water. The steam contained arsenic, copper and chromium, which are substances mentioned in List II of the Annex to Directive 76/464. Although the substances did not enter into the water in liquid form, the court still held that steam is also a discharge and it therefore also falls within the scope of the Directive. It was argued that all point and non-point source pollution fall under a discharge. Therefore, non-point source pollution could require a permit as well. Namely, according to the Dangerous Substances Directive, all discharges of dangerous substances need a permit. Nitrates are on the grey list of the Dangerous Substances Directive, and therefore also discharges from non-point sources need a permit.

Nevertheless, it has been pointed out in the section 5 that the case law (cases C-416/02 and C-121/03) points to another way of reasoning. It is argued in these cases that nitrate pollution did not need a permit under the Ground Water Directive, even though nitrates are mentioned on the grey list of this Directive. It was argued that nitrates were already covered under the Nitrates Directive. When this argumentation is followed, one could also argue that nitrates do not need a permit in line with the Dangerous Substances Directive. But this statement needs further investigation.

When nitrate pollution coming from non-point sources does require a permit under the Dangerous Substances Directive, it would be illegal not to have a permit system in place. When there is no permit system in place for discharges emanating from the agricultural sector, this sector is exempted from its obligations under EU law. When this is the case, one could speak of illegal state aid, which will be discussed below.

#### **6.5. Discharges from Non-Point Sources and the Problem of State Aid**

It may be possible to state that exempting non-point source pollution from a levy or a permit is illegal state aid on the European level. In order to conclude this, it is necessary to look at the wording of Article 87 of the EC Treaty which touches upon the subject of state aid. It is stated in Article 87 (1) that 'save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, insofar as it affects trade between Member States, be incompatible with the common market'.

This Article points to aid given by the Member State or through state resources. One could argue that exempting one sector from the payment of a levy on a part of its pollution, or exempting it from the requirement of having a permit, also falls within this category of aid. This was also concluded in case N 157/2002<sup>74</sup> on an exemption from having to pay a water

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<sup>74</sup> Case no. N 157/2002 on the exemption from a water levy. This case can be found at: [http://ec.europa.eu/competition/state\\_aid/register/ii/by\\_case\\_nr\\_n2002\\_0150.html#157](http://ec.europa.eu/competition/state_aid/register/ii/by_case_nr_n2002_0150.html#157)

levy in the Netherlands. In this case the European Commission stated that the exemption from the payment of a levy was viewed as illegal state aid.

One can thus argue that exempting the agricultural sector from having to pay a levy on a part of its pollution is not in line with European law. The agricultural sector does not have to pay the total costs of its discharges into national surface water, and therefore this measure is selective and favours one economic activity over the other. However, if non-point sources do not fall under a water service, cost recovery is not obligatory and, therefore, levies do not have to be applied. Nevertheless, discharges do require a permit. Exempting the agricultural sector from this duty is more likely to be in breach of European obligations. However, the previously mentioned case law points to the fact that nitrate pollution from non-point sources will be regulated under the Nitrates Directive, in which case permits are also not obligatory.

Lastly, the measure which is taken by the Dutch government may affect trade between Member States. When the Dutch agricultural sector does not fully pay the costs of its discharges from non-point sources, and the agricultural sectors in other Member States do pay for these discharges, this would affect trade between the Member States. Namely, an agricultural product would under Dutch circumstances be cheaper than the same product produced in another Member State.

Nevertheless, not many<sup>75</sup> European Member States apply levies to non-point sources of pollution. Therefore, if the Netherlands would introduce this levy it would distort the market position of the Dutch agricultural sector on the European market. This is a legitimate reason why the Netherlands has not yet introduced a levy. As long as no other Member State does this, and the European Commission does not explicitly state that it follows from primary or secondary European legislation that it is obligatory, it is also not necessary to implement the levy. Hence, the conclusion is that although it may seem unfair that non-point sources of pollution are excluded from paying levies, it will not be seen as state aid as long as the Commission does not indicate otherwise.

However, the fact that non-point source pollution could be seen as a discharge under the Dangerous Substances Directive is worrisome for the Netherlands. Not only would it imply that the Netherlands is in breach of Community legislation, but it would also mean that it places the agricultural sector in a more advantageous position. This can be viewed as illegal state aid. Therefore, the next subsection will look at the exceptions which allow the Member States to divert from EU obligations.

There are some options which may be considered compatible with the common market and can thus be relied upon by the Member States. These exceptions can be found in Article 87 (3) EC Treaty and encompass the following: aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment; aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State; aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest; aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Community to an extent that is contrary to the common interest; and such other categories of aid as may be specified by a decision of the Council acting by a qualified majority on a proposal from the Commission.

Looking at these exemptions, especially the aid to remedy a serious disturbance in the economy of a Member State is a very interesting option for the Netherlands. The Netherlands has decided to apply the good agricultural practices of the Nitrates Directive to the entire country, since the whole country suffers from the amount of nitrates in surface waters. Since this is the case, one could argue that the whole country requires aid in some form in order to help the agricultural sector. If the costs of this sector will increase due to levies or due to additional permits, it may be possible that the sector is no longer able to survive. This is a reason for the Member State to give aid to the sector in order to avoid that the economy will seriously suffer. Such aid is thus accepted by the Commission. This may be a somewhat far-fetched reasoning, but nevertheless it may still hold true as an argument since it is also in the best interest of the EU to keep the European agricultural sector 'alive'.

In a previously mentioned case (N 157/2002) the Commission did allow the application of the exception in Article 87 (3) (c) EC Treaty, which allows aid to facilitate the development of certain economic activities or of certain economic areas. Although the exemption in this case

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<sup>75</sup> Sweden and Germany are experimenting with a levy on on-point source pollution.

was temporary, it does show that the argument of assisting the economy of its Member States can still hold its own.

The main reason why the Netherlands does not consider the exemption from the payment of a levy and the exemption from having additional permits to be state aid is because they contribute to the development of rural areas. However, it must be questioned whether rural development is really necessary to improve standards of living or to increase employment in these areas. These reasons are necessary for the Commission to accept the aid. What is most important for the Commission to accept a certain type of aid is the justification behind it. The Netherlands must clearly indicate the exact reasons for not applying levies or permits.

Thus, the Netherlands, together with most other EU Member States, does not apply levies on non-point sources of pollution. Although this may seem unfair, EU law does not provide the means to make this obligatory. The agricultural sector is still a very sensitive issue for many Member States. This is why the European Union sometimes overlooks certain issues related to this sector. However, it seems to be in line with European obligations to introduce levies on non-point sources of pollution. But certainly the Netherlands will not be the first to introduce levies on these sources of pollution when no other Member State does this as it will negatively influence its market position. As long as non-point sources of pollution are not included in water services the Member States can continue with their current way of working. However, the exemption from having permits may be more difficult to justify at the European Court.

## **6.6. Discussion**

Section 6 has looked at the introduction of the economic instrument of levies on non-point sources of pollution. At first, the idea was that European law may steer Member States in the direction of using levies on non-point sources of pollution. However, after having taken a closer look at the obligation as laid down in the WFD, the conclusion could be drawn that this is not the case. Nevertheless, it is still necessary to tackle non-point sources of pollution and therefore this section also looks at how and whether this will be possible.

The WFD is aimed at the creation of a situation in which all polluters pay for their pollution. It states that the costs of water services have to be recovered from the users. Nevertheless, it is left to the Member States to decide whether they wish to include non-point source pollution in their water services. According to the WFD, non-point source pollution is a form of water use and there are no explicit rules which state that the costs of water use have to be recovered. Therefore, there is no obligation for the Member States to apply the principle of cost recovery to non-point source pollution.

There are several reasons why non-point sources of pollution are still not covered by levies in the Netherlands. First of all, the Van der Vlies Reslution is in place which argues that the agricultural sector as a whole does not have to incur additional costs since it is already doing enough under the Nitrates Directive. In accordance with the Nitrates Directive, the agricultural sector in the Netherlands takes emission reduction measures which are paid for by the sector itself. The Netherlands thus lives up to this Directive. However, the agricultural sector does not have to pay any levy on its remaining pollution which enters surface water and groundwater. Imposing levies on top of these reduction measures would imply that the agricultural sector will face an increase in its costs. This would not be a problem when all Member States would impose levies on non-point sources of pollution. However, when this is not the case, the price of Dutch agricultural products will increase, while those of other Member States will remain the same, as they do not face higher costs due to the levies. Clearly, the competition position of Dutch agricultural products will deteriorate due to the levies.

Furthermore, monitoring where the (non-point/diffuse) pollution comes from is quite difficult. In order to do this a register has to be created in which all farmers have to indicate how much fertilizer they have bought and/or used. These numbers will then be used to calculate how much nitrates will be absorbed by the vegetation on the land and how much will be washed out into the water. Although this may seem difficult, it has already been done under the MINAS<sup>76</sup> system. Therefore, this is not the largest obstacle to the introduction of this instrument.

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<sup>76</sup> MINAS stands for 'mineraalafgiftesysteem' (mineral accounting system) which is a system which has been used to register the amount of fertilizers used by the agricultural sector and looks at how these fertilizers are absorbed by plants in order to calculate the wash-out of fertilizers.

Thus, although there does not seem to be an explicit obligation in EU law to make use of levies on non-point sources of pollution, one can state that it would be in line with the ideas behind the polluter pays principle and that of cost recovery. Therefore, one could think of a construction in which it will be more likely that the levy will be accepted, namely to invest the yields from the levies on non-point sources of pollution back into the agricultural sector. This construction will ensure that the polluter pays principle is applied to the agricultural sector, as the levies will be applied, while the Van der Vlies Resolution is respected. The yields earned by the water boards from the pollution levy on non-point sources of pollution could be invested in farmers performing ecosystem services.

Section 5 has indicated that farmers can receive compensation for the performance of ecosystem services, as long as the measures which are taken by the farmers go further than what is obligatory under EU law. Thus, for all additional measures the farmer can receive compensation. When levies are paid, the money will thus indirectly be invested in the agricultural sector. The ecosystem services for which the farmers receive compensation will reduce the amount of emissions into water, thereby reducing the costs of pollution for farmers. When levies are differentiated, those farmers which pollute less will also pay less.

When using the yields from the levies to help farmers to become involved in the performance of ecosystem services, this will increase a level playing field. This construction would thus both tackle non-point sources of pollution and help farmers in the performance of ecosystem services. However, a disadvantage of this structure is that if all farmers would be engaged in the performance of ecosystem services, it may cost too much. The levies may not provide enough money to compensate all farmers. This may result in a situation in which it would not be possible to allow one farmer to receive money for the performance of ecosystem services. This may become an issue when this instrument becomes very popular and involves many farmers.

Thus, it may be interesting to still apply levies, although they are not obligatory. However, if it would be decided on the European level that, in fact, the exclusion of non-point sources from obtaining permits is illegal, this would result in an increase in costs for farmers. Farmers will then have to apply for permits and take costly reduction measures in order to adhere to the permit standards. Although this is not in line with the Van der Vlies Resolution, the judgement of the ECJ will have precedence over Resolutions at the national level. Whether this will occur remains to be seen.

## **6.7. Conclusion**

This section has indicated that the introduction of the economic instrument of pollution levies on non-point sources of pollution is a possible option. Yet, there are many factors which should be taken into account. First, if levies were to be introduced in the Netherlands, it would be the first European country to introduce such levies on non-point sources of pollution. This may have negative consequences for the economy of the Netherlands. A possible solution is offered by investing the yields from the levies in the agricultural sector, by stimulating the performance of ecosystem services which will reduce emissions and thereby lower the costs for farmers.

This economic instrument is fairly easy to introduce as the Netherlands already has systems of levies in place, which is an advantage of this system. Thus, legally the introduction of levies on diffuse sources of pollution is indeed possible; however, the remaining obstacles are largely political issues.

An additional dilemma would occur if non-point source pollution will also be seen as a discharge in the sense of the Dangerous Substances Directive. This will imply that all farmers require permits for their discharges. However, the case law does seem to indicate that this will not be the case.

If the Netherlands decides not to introduce levies on non-point source pollution, there is also an alternative instrument which will be discussed in the following section.

## 7. Tradable Water Rights

The previous section has looked at the possibilities of introducing levies on diffuse sources of pollution. When levies are not preferred as an instrument, there is an alternative instrument which is already available. This instrument is tradable water rights. This instrument can either be based on the quality of water, in which water emission rights are traded between participants, or on water quantity in which case amounts of water are traded. This section will look at these two options; however, the main focus lies on tradable water pollution rights, as this is an interesting option which could help to reduce water pollution from the agricultural sector. Section 7.1. to 7.4 will focus on tradable water pollution rights. Section 7.5 will be devoted to tradable water use rights. These subsections will investigate the trade systems in order to establish whether such instruments could be introduced in the Netherlands.

### 7.1. Water Quality Problems

The problem with water quality has already been pointed out in the previous sections. Basically, the Netherlands suffers from a high amount of pollutants in surface waters which are caused by the agricultural sector, households and the industrial sector. Pollution from industrial sources and households has been reduced significantly over the past few decades. The agricultural sector is the largest polluter at the moment, which is not a surprise since almost 70 % of Dutch territory is used for agricultural purposes.<sup>77</sup> In order to improve water quality it is necessary to find new instruments which will tackle these sources of pollution. This instrument can be filled in by a system of tradable water emission rights, as the agricultural sector and the industrial sector would be able to trade pollution rights with each other in order to stimulate less polluting behaviour.

### 7.2. Trading in Water Pollution Rights

The idea behind a trade system in water pollution rights is that water polluters will receive or buy emission rights. These rights, based on one particular polluting substance, can be traded amongst the participants. A system of tradable pollution rights can be seen as an alternative to the introduction of levies on non-point sources of pollution, as the right to pollute will have a price.

The cap-and-trade model best fits the system of tradable water emission rights. In a cap-and-trade model the total amount of allowable emissions into water is set. Within this space, pollution rights are divided amongst the participants.<sup>78</sup> When a participant pollutes more than its emission ceiling it should either take emission reduction measures or buy emission rights from those participants which do not use all their rights. As long as there are mutual differences in the marginal reduction costs, the participants with relatively high marginal reduction costs will buy rights from those participants with relatively low marginal reduction costs. Since the participants will opt for the cheapest option, the reduction measures will be taken in the cheapest way. This instrument is potentially more effective than taxes or levies, as it is always difficult to determine the exact optimal amount of a tax or a levy which would provide sufficient protection to the environment.<sup>79</sup>

In order to design a market-based instrument for the trade in water pollution rights it is thus important that a maximum cap is set, which is called the ceiling. This division of rights can be done by grandfathering, which implies that the government would divide the pollution rights based on historical pollution permits, or through an auction. After the rights have been divided or auctioned, they are freely tradable. For each emission permit which is used by the participant, one emission permit has to be exchanged.<sup>80</sup>

The fact that the farmer is able to sell his pollution rights will lead to innovation. The ability to sell pollution rights will stimulate parties to search for innovative measures which will reduce the amount of pollution. Parties will be able to receive additional income from selling their pollution rights. Naturally, parties will only be stimulated to innovate when the price of a pollution right is sufficiently high. This will depend on the cap. In CO<sub>2</sub> trading, for example, the cap has been set too high which does not allow the rights to become scarce. Scarcity is

<sup>77</sup> <http://www.agriholland.nl/dossiers/landbouwgrond/home.html>

<sup>78</sup> *Supra* note 3, p. 48.

<sup>79</sup> *Supra* note 3.

<sup>80</sup> *Supra* note 2, p. 38.

necessary in order for the system to become effective. When the rights become scarce, there are more parties who want to buy rights than there are rights for sale. When more parties want to buy more rights, the price of the rights will increase. This development could then be a stimulant for parties to take emission reduction measures, as it will become the cheaper option. As a result, a system of tradable water pollution rights will always stimulate innovation and the sustainable use of the environment.<sup>81</sup>

In the Netherlands, the parties which could take part in this kind of emission trading could be point sources such as municipal waste-water treatment plants and industry, but also non-point sources like the agricultural sector. However, it is much easier to know exactly how much an installation has polluted, as point sources discharge their pollution at one point, through a pipe, for example. For non-point sources, this is more difficult to measure, as there is not one identifiable point. Furthermore, point sources have always had to obtain permits to pollute, while this has not been the case for the agricultural sector.

A negative aspect of the introduction of a market system for tradable pollution rights is that the reduction credits have to be registered and monitored. For this purpose a register has to be created. This register has to register all transactions and this could be done by either a market authority or the water boards. Thus, a whole new system has to be created in order to be able to register all the transactions. Especially for non-point sources of pollution these registers are expensive because each individual farm has to be visited and emissions have to be measured on each farm. Furthermore, it has to be ensured that farmers only receive reduction credits when they have actually reduced pollution. This also has to be measured. Hence, setting up such a new system may be expensive and complicated. However, farmers already have to create a register in which they register the amount of fertilizers they have bought or used. This was already obligatory under the MINAS system. Therefore, this could be used as a basis for further developing the system.

So far, the market system for tradable water pollution rights seems to be very efficient in an economic sense. Nevertheless, it also has to fit within the existing legal framework. Therefore, the following subsection will discuss whether a market system for tradable rights fits within the current European legal framework.

### **7.3. The Legal Possibilities for Introducing a Market System for Tradable Water Pollution Rights within EU Law**

In a legal sense, emission trading is a policy instrument which fits well within recent developments in EC environmental and water policy. CO<sub>2</sub> emission trading was introduced in 2003 with the CO<sub>2</sub> emission trading Directive<sup>82</sup> and can be seen as a breakthrough in the application of economic instruments in the field of European environmental policy. As has been pointed out before, economic instruments are also mentioned in the WFD in Article 9 and in Article 11 (4). An (emission) trading system in the field of water policy would thus be the next step in the development of economic instruments in European environmental policy.

The previous sections have already indicated that a system of tradable water rights is potentially very efficient in an economic sense. However, it is necessary that the system fits within current European obligations and laws. The European Union has many Directives in place which require permits or reduction measures to be taken for certain emissions. As the last 'old' EU water Directives will be replaced by the WFD in 2013, it is necessary that the rules within these Directives are still respected. The following sections will shed some light on related European legislation in order to conclude whether it is legally feasible to introduce a market system for tradable water pollution rights.

#### **7.3.1. The WFD and a Market System for Tradable Water Pollution Rights**

The goals of the WFD require Member States to take measures at the national level which will result in the goals of the Directive being attained. As has been pointed out, the goal of this Directive is to achieve the good status of water by 2015. Introducing a trade system could lead to the desired result of the good quality of water because participants will be

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<sup>81</sup> *Supra* note 3, p, 100.

<sup>82</sup> Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, *OJ L* 275/32, 25.10.2003.

stimulated to pollute less. By installing a cap, which can be adjusted, the total amount of emissions will be reduced, which will benefit water quality. Thus, in theory a system of tradable water pollution rights will ensure that the goals of the WFD are attained.

Furthermore, Article 9 of the WFD specifically points to the use of economic instruments in the field of water policy. A trading system for water pollution rights perfectly fits within this definition, as a price will be attached to the right to pollute water. Those who pollute water will thus face the costs of their pollution, which also assures that the polluter pays principle is respected. Additionally, a cap-and-trade system would also perfectly respect the polluter pays principle, as any farmer polluting more than his ceiling would have to buy more rights. This construction ensures that those who will pollute will either have to invest in cleaner technologies to reduce their emissions, or buy additional rights.

In the WFD, one can find in Article 11 (5) the obligation to tighten the caps when it appears from monitoring that the environmental goals as mentioned in Article 4 of the WFD have not been met. When a system of tradable water pollution rights would be installed, the Dutch government can always adjust the cap in order to ensure that certain substances will be diminished in water. Thus also these obligations will be fulfilled.

Article 3 of the WFD requires Member States to take a river basin approach. The trade in water pollution rights will also answer these obligations as water emission rights will be traded amongst participants in a same area. For a system of tradable water pollution rights this could imply that the responsible authority of a river basin district will allocate water pollution rights and coordinate the possible trade. However, trade may be difficult when a river basin is transboundary. When the neighbouring country is not involved in water pollution trading, this may imply that a trading system in that area will not be very successful.

Article 16 of the WFD sets out the strategy for dealing with the chemical pollution of water. This is further elaborated in Annex V of the WFD, which goes into environmental quality standards. These standards are levels that are used to assess the risk of chemical pollutant effects on water quality to the health of aquatic plants and animals. In order to effectively deal with the chemical pollution of water a Decision (2455/2001/EC) has been adopted on the European level. In this document 33 priority substances are mentioned which are of priority concern for the Community. Furthermore, the Dangerous Substances Directive also provides guidance as to which substances should be reduced in water. The caps of the trade system can thus be based on these environmental quality standards in order to ensure that the good chemical status will be achieved.

Thus, the trade in water pollution rights will be based on individual pollutants. It will simply be too complicated to calculate for every polluting substance how much of one substance would equally represent the amount of pollution by another substance. Therefore, separate markets have to be created for each pollutant. The Netherlands therefore has to decide which substances it thinks will be suitable for a trading system. Most likely this will be nitrate as the agricultural sector pollutes water with significant amounts of nitrate. Therefore, it is necessary to look into the Nitrates Directive as well in order to ensure that the trading system fits within the obligations of that Directive. This will be done below.

### 7.3.2. The Nitrates Directive and a Market System for Tradable Water Rights

As has been pointed out in this research, the Nitrates Directive has as its main purpose to ensure that ground and surface waters are protected from pollution emanating from agricultural sources, of which the most important is nitrate pollution. According to the Nitrates Directive, Member States have to take nitrate emission reduction measures. The Netherlands had initially adhered to this obligation by establishing the MINAS system (the mineral accounting system), which was based on loss standards. This implies that it was more important that the nitrogen balance was respected than the actual total allowable amount of fertilizer (the emission limit) on land as laid down in the Nitrates Directive.

The mineral accounting system quantified farm-gate nutrient inputs and outputs. Differences (the surpluses) had to be lower than loss standards, based on the required quality of water.<sup>83</sup> Thus, every farmer had to register how many minerals he had on his farm. He calculated this by looking at the amount of livestock he has, what kind of animal feed is used

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<sup>83</sup> Aarts, F., 'Nutrient balances as implementation of the EU Nitrates Directive; experiences from the Netherlands, Plant Research International', Wageningen, 2005, available at: [http://www.lr.dk/planteavl/diverse/PLK05\\_11\\_1\\_1\\_F\\_Aarts.pdf](http://www.lr.dk/planteavl/diverse/PLK05_11_1_1_F_Aarts.pdf)

and how much manure or how much and how many fertilizers he uses on his land. The farmer had to ensure that the amount of minerals he used was not more than the amount of minerals the ground could absorb. When the nitrogen balance was negative (he used more nitrates than what could be absorbed) the farmer had to take emission reduction measures.

However, the problem was that the Commission did not agree that the measures which had been taken by the Netherlands were actually fulfilling the obligations of the Directive. According to the Commission the Netherlands had failed to apply one of the main provisions of the Nitrates Directive, namely a limit on the amount of manure that can be applied to farmland (170 kilograms per hectare) (the Netherlands received a derogation, which allows it to apply 250 kg/ha). Therefore, the European Court of Justice ruled against the Netherlands for failing to correctly implement the Nitrates Directive.

In October 2003, the ECJ Court stated in case C-322/00 that the MINAS system did not fulfil the European demands. It was decided that the Nitrates Directive requires application standards and not the loss standards which the Netherlands used. Consequently, the Netherlands had to change its approach from loss standards to application standards for (organic and inorganic) fertilizers.<sup>84</sup>

The interesting thing about this judgement is that, apparently, the Commission does not allow any system to be in place which allows Member States to exceed the maximum amount of kilograms of fertilizer per hectare. It is of the opinion that the maximum cap has to be respected. Therefore, this judgement greatly influences the possibilities for Member States to create a trading system in water pollution rights. Namely, the caps of particular polluting substances as laid down in existing Directives have to be respected.

The idea behind a trading system is that when one farmer pollutes more than his maximum he can buy pollution rights from other farmers who pollute less than the maximum. However, this ECJ judgement has shown that the ECJ and the Commission do not allow the maximum to be exceeded. Therefore, one can state that as long as this Directive is in force, a trading system for water pollution rights for nitrates may be complicated.

Nevertheless, it is not impossible to introduce a trade system. For example, one could think of a construction that would still respect the cap by setting the cap lower than the maximum as laid down in the Nitrates Directive. This would imply that stricter caps are set in order to stimulate farmers to pollute less. However, this would also imply that farmers will have to take more emission reduction measures than what they are obliged to do under EU law. This is not a bad thing in itself, but it will most likely not be accepted by farmers, as it will increase their costs, since they have to take more emission reduction measures. This would also not be in line with the Van der Vlies Resolution.

Thus, in short, the judgement of the ECJ will complicate the introduction of a system of tradable water pollution rights for nitrates. A trading system for nitrates will only be possible as long as it does not breach the maximum cap as laid down in this Directive. The same problem also holds true for the IPPC Directive. This Directive will now be discussed.

### 7.3.3. The IPPC Directive<sup>85</sup> and a Market System for Tradable Water Rights

The purpose of the IPPC Directive is to regulate emissions into the soil, air, water and to limit odour and noise from installations. The IPPC Directive thus aims to minimize pollution and other environmental impacts from various industrial sources throughout the EU through the issuing of permits. However, the Directive's main focus lies on point sources of pollution and not on the agricultural sector. Yet one can find some rules related to the agricultural sector. The Directive states in Article 1 that the purpose of the Directive is to achieve integrated prevention and control of pollution arising from the activities listed in Annex I. In Annex I intensive pig and poultry producers who have over 750 sows or 2,000 finishing pigs or 40,000 poultry as well as horticulture businesses with greenhouse generator capacity over 50MW thermal input capacity are mentioned as activities covered by the Directive.

Thus, this Directive covers intensive agricultural farming. However, this may change in the future due to the Commission's proposals to revise the IPPC Directive.<sup>86</sup> This new proposal will

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<sup>84</sup> *Supra* note 83.

<sup>85</sup> Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control, OJ L24/8 29.1.2008.

<sup>86</sup> Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, Towards an improved policy on industrial emissions, COM (2007) 843 final, Brussels, 21.12.2007.

basically expand the scope of the IPPC Directive to cover more pig and poultry farms, including seasonal turkeys and free-range producers. If the IPPC Directive would cover more farms, this would imply that more farms will require permits.

Permits based on the IPPC Directive contain emission limits. If a trading system in pollution rights would be introduced it will imply that the emission limits will be used to establish the amount of pollution rights a polluting source owns according to the register of emission rights. When the participant pollutes more than this emission limit, which is the cap, he will have to buy more rights. However, if the Commission is of the opinion that emission limits cannot be breached by individual farmers, this system cannot be implemented as long as the IPPC Directive is in force.

Furthermore, it has to be mentioned that the integral approach which has been initiated by the European Union in its environmental legislation is not followed when introducing a system of tradable water rights. The trade in emission rights is usually based on one polluting substance or a limited combination of substances which are spread in one environmental compartment. Especially the IPPC Directive follows this integral approach when issuing permits. This would thus imply that some substances within an IPPC permit are subjected to a trade system while others are not. This may be difficult to register and monitor.<sup>87</sup>

A solution to this problem, just as is the case with the obligations of the Nitrates Directive, is simply to use the market system for tradable water pollution rights as an additional instrument to the permits.<sup>88</sup> This would imply that the caps will be lowered in order to create a trade system. Thus, farmers will have to take more emission reduction measures than they are obliged to do according to their permit. Most likely this will not be very popular as it will increase the costs for farmers.

Lastly, it is interesting to look at the Best Available Techniques (here after BAT), which is central to the IPPC Directive and also important for the WFD. The principle of BAT entails that the best techniques which are available in the field of emission reduction should be used. It is thus always aimed at the reduction of emissions. One can state that trading in pollution rights does stimulate innovation; however, it leaves the choice to the parties involved. Thus, the reasoning behind BAT is not the same as the reasoning behind the trade in pollution rights.

However, one advantage of the trade in pollution rights compared to BAT is that the government does not have to examine whether an installation can perform better from an environmental point of view. The government has to adduce evidence which supports this point of view in order to compel an installation to perform better. In a trading system the installations will make this evaluation themselves in order to conclude if they should buy additional emission rights or take emission reduction measures.<sup>89</sup>

To summarize, the IPPC Directive requires installations (also intensive agricultural farms) to have permits. The judgement of the ECJ concerning the MINAS system will also affect the possibilities of introducing a market system for tradable pollution rights under the IPPC Directive. As long as parties are not allowed to pollute more than what is laid down in their permit, even though the average amount of pollution will be the required amount according to EU obligations, a trade system cannot be implemented. It can be implemented but only with stricter caps and with the obligation that the participant will not pollute more than what is laid down in his permit. This does not only apply to the Nitrates Directive and the IPPC Directive, but also to all other water-related Directives which use water quality objectives, such as the Dangerous Substances Directive and the Ground Water Directive.

#### **7.4. The Legal Possibilities for Introducing a Market System for Water within Dutch Law**

As has been pointed out in section 3, the Netherlands has extensive environmental legislation in place. The most important acts related to emissions into surface water are the Surface Water Pollution Act (*Wvo*) and the Water Management Act (*Wet op de Waterhuishouding*). In line with these Acts every discharge into water requires a permit. New economic instruments have to fit within these existing laws.

The Netherlands can choose to establish a market system for tradable water pollution rights by implementing it alongside existing legislation, e.g. the polluting activity will be

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<sup>87</sup> Supra note 49, p. 88.

<sup>88</sup> *Ibid.*, p. 88.

<sup>89</sup> *Ibid.*, p. 92.

subjected to a permit as well as to the trading system. This system fits within modern water policy, since a mix of instruments will be used.<sup>90</sup>

This has also occurred in the USA. The Environmental Protection Agency (the EPA) formulated a Directive in 1996 which ensured that the trade system was implemented. The idea is to change as little as possible in the current laws. This option also avoids that a great deal of the already existing legislation has to be amended. The most important aspect is that the emission limits, which are laid down in the polluter's permit, are flexible and that they depend on the amount of emission rights which a polluter has. The permits, the maintenance of these permits and the sanctions can remain the same.

CO<sub>2</sub> emission trading is also a separate legal solution alongside existing legislation in the Netherlands. There is even an independent agency which supervises the functioning of the trading scheme. This new governmental body is called the Dutch Emissions Authority (DEA). The DEA deals with the licensing, inspection and enforcement of the trading scheme. It is necessary to create such an authority for a trading system in water pollution rights as well, as it is important to clearly establish the tasks, responsibilities and liabilities of the participants. Furthermore, the rights have to be registered in order to keep the market transparent.<sup>91</sup>

In the Netherlands it would thus be possible to take the emission limits as laid down in the permits which are obligatory under the *Wvo* and the *Wet Milieubeheer*, and to establish these as the caps. Then within the ambit of these caps the rights relating to emissions into water can be traded. This does not seem to be contrary to existing Dutch water legislation.

In short, it would thus be possible to establish a trading system in water pollution rights in the Netherlands. However, it is necessary that a separate authority is created, just as has been done to implement CO<sub>2</sub> emission trading, which coordinates this trade. Furthermore, emission rights can be given to polluters within the limit of their permit. Nevertheless, the ECJ judgement in case C-322/00 has to be taken into account as well. Since European law has supremacy over Dutch law, it implies that permits which are issued in the Netherlands also have to ensure that the maxima as laid down in permits are not exceeded. Thus, once more, emission trading is possible, but only within the limits of a permit.

## **7.5. A Trade System for Water Use Rights**

The previous subsections have looked at the legal possibilities of introducing a market system for tradable water pollution rights. However, alongside a system of tradable water pollution rights, it is also possible to introduce a system for tradable water rights. A system of water use rights could prove to be very useful in order to tackle the problem of droughts, which will occur more frequently due to extreme weather conditions. In a system of tradable water rights, one focuses on the quantitative problems of water and thus the water use rights are based on the quantity of water. A trading system in water rights has the same economic and environmental advantages as have been mentioned in section 7.2, namely it would stimulate the sustainable use of water and it would lead to technological innovation which will reduce water use.

A trading system for water rights already exists in the USA. Therefore, it is interesting to take a look at this system in order to find out what the obstacles are which are experienced in the USA. These obstacles could provide an insight into the possibilities of applying this system in the Netherlands as well. Furthermore, the framework in which the trade system is laid down could form an example as to how to implement the system within the Netherlands.

In the USA, water use rights are called water abstraction rights. These rights can be either permanent, which will make them property rights to water, or they can be limited, which makes them tradable rights in the use of water. The system of tradable water rights is facilitated by federal laws of the Environmental Protection Agency (EPA) and implemented by local organisations, local governments and industries. The rules have been laid down in a federal policy document called Water Quality Trading Policy and is further elaborated upon in the EPA handbook of 2004.<sup>92</sup>

Two legal concepts underpin the water abstraction rights and the allocation of water abstraction rights in the USA, of which the first is the concept of riparian rights. This concept prescribes that a landowner can use groundwater for his own purposes within the limits of his

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<sup>90</sup> *Supra* note 49, p. 86.

<sup>91</sup> Klooster, J.P.G.N., Torenbeek, R., de Vries, C.J., Wind, M.H.A., 'Verhandelbare Waterrechten, Verkenning van een Nieuw Instrument in het Integraal Waterbeheer', CE, Delft, 2007, p. 27.

<sup>92</sup> *Supra* note 91, p. 27.

own land. However, the landowner does not have a private property right to the groundwater of his own land and neither is the landowner allowed to trade any groundwater surpluses. Nevertheless, the right to use groundwater for the landowner's own purposes within the limits of his land is a permanent right and is only limited to the reasonable use of that groundwater.<sup>93</sup> Thus, within this concept the right to use water cannot be traded. Since the Netherlands is interested in a market system, this concept does not seem to be suitable.

The second legal concept used in the USA is prior appropriation. This separates the water abstraction rights from the property right of the land. Therefore, the rights can be traded. The allocation of water abstraction rights is based on the first-in-time, first-in-right principle which entails that the first person who uses the ground or surface water for a particular purpose (e.g. agriculture) can continue to use that right for that purpose. Each water abstraction right represents an amount of water which can be used within a year; it thus has an appropriation date. The participant with the earliest appropriation date (the senior appropriation date) can use his right in its entirety, assuming that the qualitative state of the water allows this. Then, the user with the following appropriation date (the junior appropriation date) can use his right in its entirety and so on. In periods of drought it is possible that the owners of a right with a junior appropriation date cannot fully use their rights. They can then buy rights from other participants. The rights which are traded do keep their appropriation date. When the water right is not used before its appropriation date, it expires.<sup>94</sup>

De Smedt and Maes (2006)<sup>95</sup> have looked into the system used in the USA. And they conclude that this system does not guarantee the sustainable use of water, as there is still an overexploitation of water. This creates doubts as to the ecological effectiveness of the instrument. Especially in cases in which the right to abstract water is linked to the property rights of the landowner, the overexploitation of water is still considerable. It is possible to take measures to avoid overexploitation as is done in Australia.

In Australia, they do not use tradable water rights which are linked to property, but try to avoid overexploitation by setting up Water Allocation (Management) Plans. In these plans principles, rules and regulations are laid down which have to be respected when trading in surface and groundwater in a certain area to which a plan applies. The plans are revised on a yearly basis in order to ensure that water is not exploited. In addition, when a party resorts to a right to trade in water, the application has to be accompanied with a hydro-geological assessment of which the square kilometre test is an essential part. This test ensures that both the quality and the quantity of water are protected from intensive use and irrigation.<sup>96</sup>

Nevertheless, it appears from foreign experiences that despite these protective measures market failures are still commonplace. This is because not all participants make use of their water rights, or only use them occasionally as there is never any certainty about the future availability of water supplies. For example, farmers with water use rights are reluctant to sell these rights. They would rather keep their rights just to be sure that they can use them in dry periods. Since the weather is difficult to predict, it will also be difficult to predict when a dry period begins. This reluctance to transfer results in uncertainty for the parties who expect to obtain extra permits from other irrigators. Furthermore, it stands in the way of trade actually taking place.<sup>97</sup>

The rights have to be divided amongst the participants. This could be done with the help of grandfathering or with the help of an auction. However, the grandfathering system may not result in a more sustainable system compared to the current water hierarchy which is used in the Netherlands to divide water in times of water shortages. With grandfathering, the water rights are divided amongst the participants in line with their historical water use. This implies that participants would receive the same amount of water as they would get under the current water hierarchy, which is used in cases of water scarcity. Participants always receive more rights than they actually need due to the information asymmetry between the parties and the government. Parties will always exaggerate their water use in order to ensure that they will receive enough water rights from the government.<sup>98</sup> Grandfathering is based on the same principles and would thus not lead to a more sustainable use of water. Therefore, the Netherlands could opt for auctioning water use rights. Yet, auctions are also not without their

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<sup>93</sup> *Supra* note 2, p. 39.

<sup>94</sup> *Supra* note 2.

<sup>95</sup> *Supra* note 46.

<sup>96</sup> *Ibid.*, p. 41.

<sup>97</sup> *Ibid.*

<sup>98</sup> *Supra* note 2.

disadvantages. The drawback of an auction is that large wealthy industries can always buy enough rights, even more than they actually need. This could make it difficult for small enterprises to obtain enough water rights for their needs.

On the European level there are not many rules or obligations when it comes to water quantity. Looking at the WFD one can observe that it does not focus explicitly on water quantity. Most articles are concerned with water quality. Article 4 of the WFD does mention water quantity and states that Member States should take measures. However, it is not determined which measures should be taken. Thus, Member States are allowed to decide how they want to manage water quantity themselves. This therefore implies that the Netherlands could introduce a market system for tradable water use rights.

Just as in the example of water quality, the introduction of a system of water use rights will require a separate authority to be established. This authority has to register the rights and their transfer. This may however be very costly in the case of water use, since there has never been a system of tradable water rights. The system therefore has to be built from scratch. It has to be determined whether the advantages of setting up such a trade system for water can be balanced against the costs of actually realising such a system. Furthermore, it has to be determined per area in the Netherlands if it is possible to realise a trade system due to geographical conditions etc.

## **7.6. Discussion**

Section 7 has looked at the possibilities of introducing a market system for tradable water pollution rights and has briefly discussed the option of tradable water use rights in the Netherlands. It has been shown that, in an economic sense, a trade system in water (pollution) rights is in theory very efficient and it can be expected that it will lead to the sustainable use of water. The introduction of such a system is indeed possible in the Netherlands, but there are certain conditions which should be taken into account.

When it comes to a trading system for water pollution rights it is first of all necessary that a cap is established. This ensures that participants have to make an effort to reduce pollution below that cap. It has been pointed out that the Nitrates Directive is still in force. According to the Nitrates Directive the maximum amount of nitrogen per hectare is 170 kilograms. However, the Commission allows the Netherlands to derogate from this amount of 170 kg N/ha. The Netherlands is allowed to use 250 kg N/ha, due to its specific geographical conditions. This thus implies that farmers in the Netherlands are not allowed to use more than 250 kg N/ha per year. It has been pointed out that the Commission and the ECJ are of the opinion that these maximum amounts of N/ha have to be respected. This obviously has consequences for the introduction of a market system for tradable water pollution rights.

If a trade system would be established, the Netherlands could think of lowering its cap from 250kg N/ha to 170 kg N/ha. Since farmers are not allowed to use more than 250 kg N/ha, trade can only take place within 170kg N/ha and 250 kg N/ha. However, farmers will most likely not favour this idea because they will have to take more emission reduction measures. Furthermore, this construction could have consequences for the derogation which the Netherlands currently enjoys. If the Netherlands would lower its cap from 250 kg N/ha to 170 kg N/ha, it is possible that the Commission could state that it is apparently possible for the Netherlands to apply 170 kg N/ha. As a result, the Netherlands could lose its derogation which will inevitably have consequences for the Dutch agricultural sector.

Thus, as long as the Nitrates Directive remains in force, it may not be very attractive to introduce a trading system for water pollution rights. The same is also true for the remaining water-related Directives with strict emission limits in permits. Even when the WFD has replaced all the old water-related Directives (the Nitrates Directive will not be replaced by the WFD), emission limits and quality objectives will have to be respected. Therefore, a market system in tradable water pollution rights may be more interesting for countries which do not fulfil these obligations regarding emission limits. Setting a cap will help these countries to attain their goal. However, the Netherlands has already reached its goal, since it already fulfils the obligations of the Nitrates Directive. Therefore, this system may be more interesting for states which have to drastically reduce their water pollution than for a country which is already fulfilling its obligations.

Nevertheless, one can state that a trade system for water pollution rights based on grandfathering does respect the Van der Vlies Resolution. Namely, emission rights which are given to participants will be based on the emission limits laid down in their initial permits. The

pollution rights will thus replace the emission limits which are laid down in the Nitrates Directive and within the permits of the IPPC Directive, for example. Consequently, farmers do not have to pay more than they had to before the introduction of a trade system for pollution rights. In fact, it even allows farmers to earn money. When it is easy and cheap for a farmer to take emission reduction measures, he could sell some of his pollution rights.

Yet, introducing a market system does require a new monitoring authority to be established which will register and monitor all the emission rights. This may be very costly. Furthermore, the monitoring efforts may be more intensive compared to using command and control instruments such as permits and levies. The Dutch government will thus have to decide whether the economic and environmental advantages can be balanced against the costs of establishing such a system.

Furthermore, the market system for tradable water (pollution) rights will not replace all licences and levies. It will exist alongside the command and control instruments. The market system can be used as an additional instrument to these command and control instruments. This is so because the trade in pollution rights will be based on individual substances. Most likely not all polluting substances will be subjected to a trade system and therefore levies and other command and control instruments will still remain in force concerning any other polluting behaviour.

When it comes to water use rights, one can take a look at the example of the USA in order to conclude that in fact a trade system in water is possible. However, in the USA the system is not very effective. Furthermore, one may wonder if water use will be more sustainable when the participants will receive water use rights based on their historical water use. This system does not result in a more sustainable use of water since participants always receive more water rights than they actually need. Therefore, it may be more interesting to establish a system which is based on the available amount of water and not on historical use, as is done in Australia. Or, instead of using a trade system, it may even be a solution to impose a levy on the use of water in order to stimulate its sustainable use.

In a legal sense, a trade system for water use rights is possible since the EU does not have strict obligations in place when it comes to water quantity. Therefore, the EU legal framework does allow a trade system in water to be introduced in the Netherlands.

The Netherlands is also considering introducing another trade system concerning water quantity, namely tradable water retention duties. This system entails that landowners have the duty to realise a minimum amount of water retention on their land. During very wet periods, the water can be stored, so that in periods of drought the water can be used and divided amongst all the parties who need water. The government will determine the bottom, i.e. the minimum amount of water which will have to be stored by the landowners (to be expressed in m<sup>3</sup>). The landowners have to create room for water on their land. However, it may be possible that the landowner does not have the necessary space, e.g. when he is situated near an urban area. In that case, he has the option of paying another landowner to do this for him.

However, at first glance this instrument does not seem to be very attractive. First, it is already geographically predetermined which landowners will experience the (costly) consequences of water retention duties. It has been concluded by the Centre for Agriculture and the Environment (*Centrum voor Landbouw en Milieu*) that water retention can best be realised by dairy farms and industrial farms. Arable farming is least fit to store water, since arable farming includes intensive ground use. Water retention will increase the amount of water on the land, which could seriously damage crops. This already points to the fact that one sector will suffer more from the introduction of water retention duties than another. Therefore, it may not be fair to make water retention obligatory.<sup>99</sup> Figure 7 below illustrates what water retention will look like in some parts of the Netherlands. Looking at that picture already shows that it would be impossible to force all landowners to become engaged in water retention. This system may therefore only be interesting when it is based on voluntary participation.

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<sup>99</sup><http://www.waterland.net/index.cfm/site/Nederland%20Waterland/pageid/C0EA402B-C4E8-6BC6-080333704BE511FF/index.cfm>



Fig. 7.<sup>100</sup>

### 7.7. Conclusion

This section has looked at the legal possibilities of introducing a market system for tradable water pollution rights and tradable water use rights. It can be concluded that it is possible to introduce such systems within the current legal framework. However, there are important points to be taken into account so that such a system does not infringe current European obligations. The Netherlands has to take into account the opinion of the Commission due to a ruling in case C-322/00, which does not allow Member States to exceed emission limits which are laid down in the Directives and within permits. Since the Netherlands already fulfils its obligations regarding emission limits, quality standards and quality objectives, this economic instrument may not be preferred. This instrument would be more appropriate for those Member States which drastically need to reduce water pollution.

A market system for tradable water use rights is already possible, since European obligations do not have detailed rules in place for problems related to water quantity. However, it has to be decided by the Dutch government if the costs and reforms which have to be incurred and made in order to make such a system possible can be balanced against the profits from such a system. This is a political discussion, however.

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<sup>100</sup> [http://www.dekrantvangouda.nl/fileadmin/dekrantvangouda.nl/krant/070216/23\\_reeuwijk/luchtfoto.jpg](http://www.dekrantvangouda.nl/fileadmin/dekrantvangouda.nl/krant/070216/23_reeuwijk/luchtfoto.jpg)

## 8. Discussion and Conclusions

This research has looked into the legal possibilities of introducing economic instruments in the field of water and has tried to provide an answer to the following question:

*What are the legal implications and possibilities of introducing economic instruments in the field of water management in the Netherlands?*

The previous sections have looked at the sub-questions and have shown that the European Union became involved in the field of the environment because of the transboundary character of environmental problems. This eventually also led to water becoming subject to European legislation. In fact, water became the field with the most comprehensive European environmental legislation. However, the sectoral approach (each water-related problem was tackled separately) taken by the EU did not seem to improve water quality sufficiently. Furthermore, the Member States wanted more flexibility, which made the EU change course. This was done with the adoption of the Water Framework Directive.

The WFD is the first European Directive which specifically points to the use of economic instruments. Research has shown that the use of economic instruments is very efficient in an economic sense and in theory it can lead to the sustainable use of the environment. However, apart from a well-functioning levy system in the *Wvo* and a self-financing system of regional water management by the water boards, the Netherlands does not have much experience when it comes to the use of economic instruments in the field of water. The Dutch Centre for Water Management has looked into the question of which economic instruments could be used for a number of water-related problems. From this research, the Directorate General for Water in the Netherlands has indicated which of these economic instruments qualify for further research. This report further elaborates upon the choices of DG Water in order to find out whether the instruments fit within the current European legal framework in the field of water.

Since the water quality problems experienced in the Netherlands are largely related to the agricultural sector, this research has looked at economic instruments which could be applied to the agricultural sector in order to reduce the water pollution caused by this sector. This research should provide advice as to which economic instruments are legally feasible to be introduced and under which conditions.

The adoption of the Van der Vlies Resolution by the Dutch Parliament is really one of the largest obstacles to the introduction of any measure or instrument which will be applied to the agricultural sector. Due to this Resolution, it is necessary for the Netherlands to find an economic instrument which will not increase costs for farmers. Thus, what can be observed is that the introduction of economic instruments in itself may not be the most complicated task in the Netherlands. Instead, it is more difficult to find an economic instrument which avoids an increase in costs for farmers. Nevertheless, it has been shown that with a little creativity it is possible to do this.

This research has looked at three case studies, namely; financial compensation for the creation of wet buffer strips, levies on diffuse sources in combination with compensation for additional measures, tradable water pollution rights and tradable water use rights. The case studies have indicated that the economic instruments that have been analysed in this paper are all legally feasible. However, for each one, the introduction is restricted to several conditions. The first case study has clearly indicated under which conditions financial compensation can be provided to farmers who voluntarily allow water boards to create wet buffer strips on parts of their land, or who voluntarily create these buffer strips themselves.

The instrument of compensation for wet buffer strips seems to be a very interesting choice as it respects the Van der Vlies Resolution, while it also indirectly ensures that water quality is improved. Currently, there are some projects which use of this instrument. There have been some pilot projects executed by *Waternet*, and quite a number of farmers are currently interested in these projects and they are quite successful.<sup>101</sup>

When wet buffer strips are created by water boards, and farmers receive compensation for the loss of income for that piece of land, it has to be ensured that farmers do not receive money for something they are already obliged to do under EU law. As long as this rule is respected, paying compensation to farmers is allowed. Thus, when it comes to the creation of

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<sup>101</sup> Interview with Nicolaas van Everdingen, who is working on the wet buffer strips projects in cooperation with *Waternet* in areas around Amsterdam (14/09/2009).

buffer strips, farmers can only receive compensation for every meter on top of what they are already obliged to construct under the obligations regarding fertilizer-free zones in the Nitrates Directive.

However, the Netherlands does run the risk that the Commission will state that the size of the fertilizer-free zones applied in the Netherlands is not satisfactory. Namely, the Commission has pointed out that it considers fertilizer-free zones of 5m to be sufficient. Since the Netherlands applies smaller fertilizer-free zones, the Commission could at some point rule against the Netherlands. This will imply that farmers, who are already engaged in the creation of wet buffer strips, will no longer be allowed to receive compensation.

Farmers do have to actually perform a service in order to receive compensation, or else it may be viewed by the EU as illegal state aid. Thus, as long as the farmer engages in the performance of ecosystem services (the creation of wet buffer strips, or allowing water boards to create wet buffer strips on his land), compensation is justified. But the use of this instrument will be based on a voluntary basis, which implies that not all Dutch farmers will be involved. Furthermore, it has to be noted that, possibly, when the instrument becomes popular, not all farmers will be able to receive compensation for the creation of wet buffer strips. The amount of money which the Netherlands can use to compensate farmers for the performance of ecosystem services is limited by certain rules. However, it is not likely that all farmers in the Netherlands will want to be involved in the creation of wet buffer strips.

Nevertheless, it has to be kept in mind that in the future the creation of buffer strips may become obligatory under EU law. The Proposal for a Framework Directive on the Sustainable use of Pesticides includes the creation of buffer strips if pesticides are used in the vicinity of water bodies. Once this Directive is adopted, it would imply that farmers who use pesticides will no longer be allowed to receive compensation for the creation of buffer strips.

After having looked at this instrument, one can state that it is a very interesting option. However, it will never become a large project which will involve all Dutch farmers, since compensation is limited and because it is voluntary. It will thus contribute to improving water quality in the Netherlands, but it is not the ultimate solution.

The second case study discussed levies on non-point sources of pollution. This case study looked into the question whether there is a European obligation to impose levies on non-point sources of pollution, as it seems to be in line with the ideas behind current European rules and obligations. Nevertheless, it is not possible to find an obligation in the WFD which states that cost recovery has to be applied to non-point sources of pollution as well. As long as there is no specific obligation, the Netherlands does not have to apply levies. Yet, it has emerged that non-point source pollution from the agricultural sector also falls under the definition of a discharge, in which case the discharges would need a permit in line with the Dangerous Substances Directive. But this is not certain and should be investigated in more detail.

One can conclude that the topic of non-point source pollution and cost recovery is a very sensitive one at the political level. The European Commission does not express its opinion on the question whether non-point sources of pollution would fall under water services, and other European Member States do not qualify non-point sources of pollution as a water service. The Netherlands will most likely also be reluctant to state that non-point sources fall under water services as it will imply that cost recovery is obligatory, which will definitely increase costs for farmers.

Thus, introducing a levy on non-point sources of pollution, at first sight, does not seem to respect the Van der Vlies Resolution. However, by using the levy yields for compensation payments for farmers who are engaged in the performance of ecosystem services, this problem can be solved. Although farmers will face an increase in their costs, they will be assisted in reducing pollution by compensation for additional measures such as ecosystem services. When the levies are differentiated, this will imply that once the pollution caused by a farmer is diminished, he will pay fewer levies. On average, this instrument will thus not increase costs for the agricultural sector. However, on an individual basis, the costs for farmers can increase as not all farmers will want to perform ecosystem services. It is therefore still likely that this instrument will not be favoured by the sector or by the politicians.

An alternative instrument to the use of levies is a market system for tradable water pollution rights. Although this instrument seems to be rather attractive in an economic sense, it should be certain that it can be introduced within the boundaries of the law. It has been shown that this is exactly the problem at the moment. It appears from the case law that the Commission is of the opinion that once a Directive contains quality standards or emission

limits, these standards and limits have to be respected. The idea behind a system of tradable water pollution rights is that emission limits (caps) can be breached, as long as the polluter buys rights from a participant who stays below his cap. However, when it is not allowed to breach the cap, a trade system seems to be complicated.

It is still possible to introduce a trade system for water pollution rights, but under another construction. The quality objectives have to be attained in any case and the maximum emission limits have to be respected as well. Yet, it would be possible to lower the existing emission limits, in order to stimulate a further reduction in pollution. This would imply that participants have to take additional emission reduction measures, beyond what is obliged under EU law. This would increase costs for the participants and would thus also disturb the level playing field. Therefore, one could state that this instrument is only attractive for states that drastically need to reduce water pollution, as caps ensure that a certain goal is achieved. The Netherlands has already attained these goals since it fulfils the obligations of the Nitrates Directive. Therefore, this system can only be used to further reduce pollution in the Netherlands. Since this is not obligatory under EU obligations, it is not likely that the Netherlands will want to force its agricultural sector to perform better than any other Member State.

Nevertheless, the ideas behind a trading system do respect the Van der Vlies Resolution as farmers will initially have the same rights to pollute as they used to when they were under the obligations of the Nitrates Directive or other Directives with emission limits. When farmers pollute more than their cap, they will have to buy more rights. It is left to the farmer to decide if he thinks investing in cleaner technology can be balanced against the costs of buying additional emission rights. However, it has to be kept in mind that a whole new system has to be created in order to make such a market system operable. The costs of registration and monitoring have to be balanced against the benefits of the system.

The same applies to a system of tradable water use rights. However, this system can already be introduced, since European legislation does not contain strict rules regarding the quantity of water. Still, it is not completely certain whether a system of water use rights will be more efficient than the current water hierarchy which is used in the Netherlands in periods of drought. Therefore, other ideas have emerged such as introducing a levy on the use of water in order to stimulate sustainable water use.

All in all, one can conclude that all the above-mentioned instruments have preconditions for their introduction. It is above all very complicated to come up with an appropriate economic instrument which will assure that water quality is improved, while ensuring that the agricultural sector will not face an increase in costs. The only possibility to ensure this is to come up with economic instruments which can be combined with compensation payments to farmers which remain within the limits of the law. The example of the case study in which levies are to be introduced clearly shows this. Levies are imposed on almost all discharges by the industrial sector and households but not, however, on non-point source pollution by the agricultural sector. Therefore, it seems common sense to introduce this levy on the agricultural sector as well. Yet, since the Van der Vlies Resolution is in place, this will be very complicated, if not impossible, unless it is introduced in combination with compensation payments for farmers.

For now, it seems that the most interesting option to use as an economic instrument which will respect both the Van der Vlies Resolution and European laws and obligations is the creation of wet buffer strips by water boards, or by the farmers themselves, for which they receive compensation. As long as farmers only receive compensation for measures they take over and above that which is obligatory under EU law, there will be no problem with EU law. In fact, this instrument is already used and it seems to be quite successful. This instrument could thus be the beginning of the use of economic instruments in Dutch water policy.

This research has clearly indicated that the economic instruments that have been discussed are in fact all legally feasible; there are simply certain conditions which have to be taken into account. The main obstacle to the introduction of these economic instruments within the field of water lies on the political level. Once (and if) this problem is dealt with there will be more economic instruments available which could tackle pollution coming from the agricultural sector. Further research into other economic instruments will have to point out if these options fit within the current legal framework. In any case one can state that when there is sufficient political will, the law will not stand in the way.



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## **Annex I**

### **Article 174 EC Treaty**

Article 174 of the EC Treaty reads as follows;

Community policy on the environment shall contribute to pursuit of the following objectives:

- preserving, protecting and improving the quality of the environment,
- protecting human health,
- prudent and rational utilisation of natural resources
- promoting measures at international level to deal with regional or worldwide environmental problems.

*Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified as source and that the polluter should pay*

## **Annex II**

### **Article 9 of the Water Framework Directive**

Article 9 of the Water Framework Directive reads as follows;

*1. Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.*

*Member States shall ensure by 2010*

- that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive,*
- an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.*

*Member States may in so doing have regard to the social, environmental and economic effects of the recovery as well as the geographic and climatic conditions of the region or regions affected.*

*2. Member States shall report in the river basin management plans on the planned steps towards implementing paragraph 1 which will contribute to achieving the environmental objectives of this Directive and on the contribution made by the various water uses to the recovery of the costs of water services.*

*3. Nothing in this Article shall prevent the funding of particular preventive or remedial measures in order to achieve the objectives of this Directive.*

*4. Member States shall not be in breach of this Directive if they decide in accordance with established practices not to apply the provisions of paragraph 1, second sentence, and for that purpose the relevant provisions of paragraph 2, for a given water-use activity, where this does not compromise the purposes and the achievement of the objectives of this Directive. Member States shall report the reasons for not fully applying paragraph 1, second sentence, in the river basin management plans.*

## **Annex III**

### **1. Motie van het lid van der Vlies (28 Juni 2007)<sup>102</sup>**

De Kamer, gehoord de beraadslaging, constaterende, dat de agrarische sector middels onder meer het derde Nitraatactieprogramma reeds een zeer aanzienlijke inspanning levert ten behoeve van de verbetering van milieu en waterkwaliteit; overwegende, dat het kabinet vooralsnog geen nieuwe lastenstijgingen beoogt voor de agrarische sector als gevolg van de implementatie van de Kaderrichtlijn Water, maar dit niet uitsluit; overwegende, dat nieuwe lastenstijgingen als gevolg van de implementatie van de Kaderrichtlijn Water bijzonder nadelige gevolgen zullen hebben voor de agrarische sector, maar ook voor het Nederlandse landschap; verzoekt de regering geen nieuwe extra lastenstijgingen – bovenop het Nitraatactieprogramma – door te voeren voor de agrarische sector als gevolg van de implementatie van de Kaderrichtlijn Water, en gaat over tot de orde van de dag.

Van der Vlies  
De Krom  
Koppejan  
Madlener

#### **1.1. Van der Vlies Resolution**

The Van der Vlies Resolution is of great importance to how the Netherlands deals with the WFD. The leader of the Dutch Reformed Party (SGP), Bas van der Vlies, stated that increased costs for the agricultural sector will have negative consequences for both the sector itself and landscapes in general. Van der Vlies states that the agricultural sector is already facing significant costs due to the implementation of the Nitrates Directive and that the WFD should not increase the costs for farmers. Therefore, Van der Vlies has formulated the above mentioned Resolution in 2007. This Resolution is adopted by the Dutch Parliament. The resolution might seriously hamper the attempts of reaching the goals of the WFD. Although the WFD incorporates the old water related Directives, it does require additional measures to be taken by the Member States. All these additional measures that are needed are seen by the Netherlands as WFD related measures, and these cannot lead to additional costs for farmers. This implies that the Netherlands has to think about measures which will increase water quality, but will not lead to an increase in costs for the agricultural sector.

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<sup>102</sup> Tweede Kamer, vergaderjaar 2006–2007, 27 625, nr. 92. De motie is aangenomen, zie daarvoor; Tweede Kamer Stemmingen 3 juli 2007 TK 88 88-4912.

## Annex IV

### The Structure of the European Union

The Treaty of Maastricht of 1992, divided the European policies into three main areas, which were called pillars. The first pillar of the European Union is called the European Community. This pillar is the supranational pillar of the EU. The EU has exclusive competence to make Directives and to conclude international agreements when provided for in an EU legislative Act. Because of the supra national structure, decisions are taken with a qualified majority vote, which implies that some Member States will be forced by the decision of other member States to implement legislative acts

However, the Member States did not favour the idea that the European Union got involved in matters which touched upon national sovereignty. Therefore, two other pillars were formed, which left the member States with more freedom to make their own decisions. Therefore, these pillars are also called the intergovernmental pillars. The figure below clearly shows the pillar structure, with the European Union as the overarching institution.



Fig. 8<sup>103</sup>

<sup>103</sup> [http://eur-lex.europa.eu/en/droit\\_communaute/union\\_europeenne.gif](http://eur-lex.europa.eu/en/droit_communaute/union_europeenne.gif)