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Legal Aspects of Underground CO₂ Storage:

Summary of developments under the London
Convention and North Sea Conference



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Legal Aspects of Underground CO₂ Storage:
Summary of developments under the London
Convention and North Sea Conference

Commissioned by Statoil ASA

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1 Executive Summary

1.1 Background and Mandate

Injection of CO₂ from Sleipner West in the Utsira formation has taken place since October 1996 at a rate of approximately 1 million tons per year. It is planned to continue as long as gas is produced from the Sleipner West reservoir, probably for another 10 to 15 years. On the background of accusations that injection and storage of CO₂ can be considered to be dumping of “industrial waste”, Statoil asked the Fridtjof Nansen Institute (FNI) to undertake an evaluation of CO₂ storage in light of the institutional framework of the London and OSPAR Conventions.

This report is a part of that project, in which we provide an updated summary of developments under the London and OSPAR Conventions as well as other relevant institutions related to CO₂ storage. The report draws upon assessments of scholarly and other literature in combination with interviews with key people working on issues related to the London Convention’s “Consultative Meetings” and “Scientific Group Meeting”. In line with the mandate, the report concentrates on the following research questions:

- a) Which committees are relevant concerning the issue of CO₂ injection under the London and Paris Convention?
- b) Which issues/cases presently dominate the agenda for the relevant committees?
- c) How pressing is the CO₂ question in these committees (are other questions of greater importance)?
- d) Is it probable that the question of CO₂ injection will be addressed in the near future in the committees, and if so when?
- e) Which connections exist to other international agreements and organisations, including the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol?

1.2 Main Findings and Observations

The main findings and observations of the project are listed below:

- The London Convention (LC) is the most relevant forum for discussions regarding the regulatory framework for CO₂ storage.
- The most significant developments under the LC took place during 1999, while a “wait-and-see” approach seems to prevail at present.

- Owing to its historical importance in catalysing developments under the OSPAR Convention, the upcoming North Sea Conference in 2002 may also initiate activities that eventually could affect developments under the LC.
- There are differing views between State Parties regarding the legal status of CO₂ storage in relation to dumping and classifications of “industrial waste”.
- It is somewhat difficult to ascertain how “urgent” the issue of CO₂ storage is, since some parties view the issue as a matter of priority while others view it as a low priority issue because there are already numerous other topics requiring urgent attention.
- Taking into account the increasing attention paid to the issue of CO₂ storage, and that the Scientific Group under the LC should continue to keep a “watching brief” on relevant research, the question is likely to be addressed in the near future.
- CO₂ storage is viewed by some to be inconsistent with provisions of the UN Framework Convention on Climate Change and the Kyoto Protocol. However, more research is needed in order to clarify the linkages between CO₂ storage and “sinks”.
- A key observation is that the issue of CO₂ storage has so far mainly been addressed in relation to *ocean* storage rather than *underground* storage. However, there does not seem to be a clear distinction between these two issues in relation to discussions under the relevant Conventions. Hence, perceptions are that any negative consequences associated with CO₂ ocean storage could have negative consequences also for underground storage, regardless of any positive findings in relation to CO₂ injection into the sub-seafloor.
- Another key observation emerges from discussions of *general principles* relating to the LC, especially the *precautionary principle*, for which the weight would seem overwhelmingly to fall on the side of caution.
- Owing to the political inclinations of the issue, it may be that a ‘purely’ scientific approach is not sufficient to convince other Parties that underground storage should gain acceptance as a legal and legitimate practice.
- Against this background, it would behove Statoil to make open discussion a priority regarding the feasibility of CO₂ injection into the seafloor and other forms of CO₂ storage. In our opinion, this could include the provision of factual information regarding practical experience and communication of scientific knowledge.
- Moreover, it could be productive to maintain a dialogue at the various levels in the decision process. This involves working in parallel on the scientific, political and

legal dimensions pertaining to CO₂ storage. In Norway, the relevant actors and institutions include the Norwegian Ministry of the Environment, in particular representatives to the Scientific Group and Consultative Meeting of the LC, as well as the NSC.

This report is structured as follows: In section 2 we give a brief overview of the most relevant international institutions and bodies for the issues of CO₂ storage and dumping. On this basis, sections 3 and 4 provide a more in depth overview of discussions taking place within the committees of the London Convention and prospects for future action at the North Sea Conference. Concluding remarks are then outlined in section 5.

2 Key International Institutions and Bodies

There are mainly three international institutions that have competence to play a role in relation to the issue of CO₂ storage and dumping:

- The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter¹ (the London Convention - LC) and the 1996 Protocol to the Convention
- The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)
- The North Sea Conference

Among these the LC appears to be the forum under which the most pronounced developments have taken place. That said, we also note that the North Sea Conference (NSR) has had a successful history of acting as an issue catalyst in the PARIS CONVENTION,² and may at its assembly in Oslo in March 2002 provide an open avenue for affecting developments under the LC. One party (Belgium) to the NSC has raised the issue several time and is expected to present a document at the next conference preparatory meeting.

¹ Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London 29 December 1972, *New Directions in Law of the Sea, (New Directions)*, Vol. IV, (LC), p. 331. 78 Parties, current to 31 July 2001.

² R. Churchill and A. Lowe, *The Law of the Sea*, p. 367-8.

3 Controversy Under the London Convention - “Wait and See”

The London Convention (LC) - and the 1996 Protocol to the Convention³ prohibit the dumping at sea of industrial waste. Regulation of dumping is also governed in the North Sea under OSPAR convention⁴, which is similar to but stricter than the LC and 1996 Protocol.⁵ This includes the dumping of industrial wastes, which was phased out by the end of 1995, except for inert material of natural origin and materials for which there are no practical alternatives on land and which cause no harm to the marine environment. The only substances for which dumping is permitted, subject to permits, are inert materials of natural origin, dredged material and fish processing waste and vessels and aircraft (until 2004), and offshore installations on a case by case basis.

The two bodies that have dealt with issues surrounding CO₂ storage are the Scientific Group (SG) and the Consultative Meeting (CM). Most of the significant but general developments within these bodies took place in 1999, which currently appear to have resulted in a “wait and see” attitude.

3.1 Meetings in the Scientific Group and Consultative Meetings

There has been somewhat of a *controversy* within these committees. During the 22nd meeting of the SG the Greenpeace observer directed attention to the general issue of ocean disposal of CO₂ from fossil fuel production and use.⁶ Greenpeace, enjoying the support of several State delegations, argued that the pace of research and development threatens to overtake proper consideration of the environmental, legal and ethical implications of such disposal. A paper presented to the SG emphasised what was argued to be urgent concerns regarding environmental impact, effectiveness and energy penalties. Fossil fuel derived CO₂ was furthermore argued to fall within the definition by the LC as an industrial waste, and consequently the dumping of such from vessels, platforms at sea or disposal into the sea floor is viewed as a breach of the Convention.

³ Protocol to the Convention, London, 8 November 1996, Not in force, *U.N. Law of the Sea Bulletin*, (1997), # 34, (1996 Protocol), p. 71. 15 Parties, current to 31 July 2001. See <http://www.londonconvention.org/>. The 1996 Protocol under Article 25 will enter into force when 26 States have become Parties, with at least 15 are also being Parties to the LC. Upon coming into force the 1996 Protocol replaces the LC for ratifying Parties.

⁴ Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, *New Directions in Law of the Sea*, Vol. II, (1972) (Oslo Convention), p. 670. This was replaced by Parties to the Oslo Convention by the Paris Convention for the Protection of the Marine Environment of the North-East Atlantic, *U.N. Law of the Sea Bulletin*, Vol. 23, (1993), (Paris Convention) p. 32, which came in force 25 March 1998. These two treaties together will be referred to as PARIS CONVENTION).

⁵ R. Churchill and A. Lowe, *The Law of the Sea*, p. 367-8.

⁶ Document LC/SG 22 INF.20.

Still other State delegations felt it worthwhile to research these and related techniques, while the Canadian delegation believed the interim report from GESAMP⁷ to have addressed these issues. GESAMP notes generally that *dumping from vessels and platforms of both liquid and solid CO₂ is prohibited by the LC and 1996 Protocol, and unless these instruments can be amended to permit such dumping, it seems unlikely that any of the current Parties could give approval to such a practice.* The Australian delegation argued an urgent need existed for the CM to look at the related legal issues,⁸ while Germany, Greenpeace and the International Union for Conservation of Nature and Natural Resources (IUCN) believed that source reduction of CO₂ emissions was the clear priority.

The conclusion emerging from the controversy characterising the SG 22nd meeting was *agreement that fossil fuel derived CO₂ is an industrial waste, and the 21st CM should be consulted concerning the priority to be accorded to consideration of these issues in the SG.* State Parties were encouraged to discuss the issues within their national governments to help facilitate broad based positions at the 21st CM, and the LC Secretariat was requested to contact the Secretariat of the UNFCCC⁹ as well as to prepare additional background information on related legal and scientific aspects.

Controversy also characterised the 21st CM. The SG report from the 22nd meeting was adopted, and the report 'Ocean Storage of CO₂' was introduced by the Secretariat and then presented by the Canadian delegation. The report gives an overview of options for general CO₂ storage as a method for ameliorating potential global warming. It describes the global carbon cycle and process of natural CO₂ storage by the ocean, and follows with brief discussions of options for enhancing CO₂ uptake by the ocean. The latter consists of stimulating increased CO₂ assimilation through direct injection into the deep sea, as well as through photosynthesis. The report does, however, not address direct sub seabed injection. Various methods of ocean injection together with associated effects are provided, and it concludes on a generally positive note with a brief analysis of legal issues, research priorities and planned feasibility and effects field trials.

⁷ GESAMP Rep.Stud.No. 63 Annex VI: LC/SG 19/11, pp. 28-42 deals only peripherally with injection into the seafloor and then only of solid CO₂. GESAMP Annex VI p. 34 notes that this is an expensive option. D. Santillo 'Letter,' 24 April, 2001, notes that GESAMP is considered an authoritative scientific body within the IMO and includes members of the LC secretariat and several delegates from LC Contracting Parties. See *ibid.* pp. 37-9 for the following.

⁸ Australia also expressed the view that the primary responsibility for CO₂ emissions reduction lay with the Conference of Parties to the Kyoto Protocol.

⁹ GESAMP Annex VI p. 39 notes that OECD collaboration through the IEA's Greenhouse Gas Research and Development Programme appears to be entirely consistent with the provisions of the UNFCCC. The objects of this are to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous interference with the climate system. It provides general guidelines and statements associated with a framework for mitigating global warming and gives Parties authority to consider the oceans when contemplating ways to mitigate global warming.

Legally, in addition to noting a prohibition by the LC and 1996 Protocol on the dumping of all but ‘approved’ substances from vessels and platforms, the report notes that *strict application of the ‘precautionary principle’ will necessitate a significant constraint on CO₂ storage in the ocean.* This is due to the complexity of ocean ecology, including aspects such as biodiversity and the daily and seasonal migration patterns. At the same time, the report also notes that “precaution” is also applicable in relation to rising levels of CO₂ in the atmosphere. Understanding the relative impacts in different environmental sectors *in order to find the best mitigation options, requires good quality information about the different options and their implications.*¹⁰

Various other State delegations, including Denmark and Germany, as well as the Greenpeace observer, supported the SG conclusion that fossil fuel derived CO₂ falls within the LC definition for “industrial waste.” Other State delegations however were opposed that such CO₂ comes generically within the definition. Still other State delegations argued that it was premature at this stage to decide these issues. The Norwegian delegation, for example, argued that the LC would not cover all aspects of disposal of CO₂ into the oceans or sub-seabed. As seen under LC Article III(1)(c), retained in Annex I Article 1.4.3. of the 1996 Protocol, disposal or storage of wastes or other matter from offshore oil and gas activities is not covered. Since it was decided under the 17th CM that “*re injection*” of produced water and other matter associated with offshore oil and gas operations does not fall within the LC definition of “*dumping*,” injection of CO₂ from offshore installations to sub-seabed formations or into the sea is likewise not covered. Disposal at sea of CO₂ from land-based sources via pipelines would likewise be excluded.

A number of State delegations stated that they wished to be kept informed of research results on the technical and scientific aspects of CO₂ disposal at sea, irrespective of the apparent legal status.¹¹ It was argued that the outcome of research into the potential for chemical and/or biological impacts on the environment would be decisive in facilitating discussion under the SG relevant to these issues. The French delegation, supported by the IUCN and Greenpeace,¹² argued that research related to CO₂ disposal at sea should not obscure attention to or detract resources from the prevention and reduction of CO₂ emissions. Several delegations viewed CO₂ disposal as a matter of priority, while others believed that the SG already had numerous other topics related to activities under the LC requiring urgent attention and resolution.

¹⁰ Ocean Storage of CO₂ p. 18. Italics added.

¹¹ D. Santillo ‘Letter,’ 24 April, 2001, notes primarily the U.S., Canada, the U.K. and Japan could not agree with the industrial waste definition.

¹² Greenpeace noted that it had submitted a detailed overview of the rationale, techniques and implications of CO₂ storage to the 22nd meeting of the SG, available on www.greenpeace.org/politics/CO2. Additionally, mentioned was the IEA report regarding the basis for the assumption that ocean storage of CO₂ would “short-circuit” continued releases to atmosphere and their subsequent exchange with the ocean.

Based upon the above divergent viewpoints the CM Chairman noted that *no consensus* existed on whether or not ocean disposal of CO₂ derived from fossil fuels would be considered an industrial waste. The conclusion reached therefore was:

- *The SG should continue to keep a watching brief on the relevant research being carried out.*
- *The CM would consider the legal, political and institutional dimensions of a potential proposal to amend the LC or the 1996 Protocol at a later stage.¹³*

Reports from a watching brief are to be reported to future CM as appropriate. State Parties involved in research and development activities concerning CO₂ storage, including Canada, Japan, Norway and the U.S., were invited to prepare a submission to the 24th SG meeting.

After this however, approaching 2002, no reports have appeared on activities for consideration under the “watching brief”. The issues surrounding CO₂ storage were not addressed under the CM in October 2001¹⁴. Even though the SG was informed of the experiments being planned in Hawaii, this was not duplicated in the CM, even though the U.S. delegation was apparently prepared to answer related questions. A small-scale experiment to pump about 40 tons of liquid CO₂ near Hawaii has not received final approval due to opposition from various environmentalists. At the same time a sub seabed injection program similar to Sleipner, but much larger, is planned for the Natuna gas field in the South China Sea. Since no questions were raised, the U.S. delegation did not raise the issue themselves.

This may give an indication regarding the priority the CM and SG presently place on CO₂ injection into the ocean generally and especially into the sub seafloor. In the face of a larger project progressing in the South China Sea and the general Hawaiian experiments postponed due to the environmentalists’ opposition, both the general and specific issues fail to arise in the LC CM and SG. The Norwegian representative to the LC CM, who noted that CO₂ storage is generally viewed as a low priority issue, substantiates this view.¹⁵ Other more pressing issues included up to last year the defining of specific guidelines concerning dumping, and presently, increasing compliance and reporting by LC Parties, and increasing ratification generally by States of the 1996 Protocol.¹⁶ The harmonisation of Russian practice with the IC

¹³ D. Santillo ‘Letter,’ 24 April, 2001, views this statement to acknowledge contravention of the LC consistent with the findings under GESAMP report above and require an amendment to the LC and Protocol should proposals for CO₂ injection proceed.

¹⁴ Correspondence with L.Nærbo, 8 November, 2001. L. Nerbo conversed with the U.S. delegation on this point.

¹⁵ Correspondence with L.Nærbo, 13 December 2001.

¹⁶ Ibid.

concerning the dumping of radioactive materials has also been an important concern, especially by the Norwegian authorities.

3.2 Legal Aspects and the Precautionary Principle: A Brief Overview

The key issue in relation to the LC is whether CO₂ arising from offshore oil activities should be considered as 'industrial waste', in which case storage in the oceans or underground formations could be prohibited. In brief, opinions differ on the legal interpretations. Some arguments are also more prone to politics, for which more time is needed in order to deliberate domestically.

Perhaps of more importance than the strictly legal considerations and consequences are the *general principles* under the LC and the 1996 Protocol. During the 1990s, under the LC, practice has developed towards a precautionary approach rather than an approach based upon an assumption of the seas' assimilative capacity.¹⁷ In 1991 LC Parties in a resolution called for a holistic approach towards waste management, as well as the use of the precautionary approach. The first type of dumping to be restricted was that regarding radioactive waste. In 1993 the moratorium on dumping of all radioactive material at sea was made legally binding, not just the high level waste appearing on the black list. Prohibition of incineration of noxious liquid wastes at sea by the end of 1994 was instituted, and amendments to the LC were adopted in 1993, prohibiting incineration of industrial waste and sewage sludge. In practice incineration at sea ended in 1991. A resolution, adopted in 1990 calling for an end to the dumping of industrial waste by the end of 1995, was made legally binding by amendment, which came into force in 1994. *In 1990 a resolution was adopted in which LC Parties decided that the disposal of wastes, especially radioactive, into and under the seabed constitutes dumping*; while that accessed from land by tunnel was not considered as dumping.¹⁸ Though not in force, the 1996 Protocol explicitly reflects these developments under the LC and re-affirms the precautionary principle.

Under Article 2, Parties must individually and collectively protect and preserve the marine environment from all pollution sources and take effective measures, consistent with their scientific, technical and economic capabilities, to prevent, reduce and where practicable eliminate pollution caused by dumping. Moreover, under Article 3.1 of the 1996 Protocol Parties must utilise a *precautionary approach* to environmental protection from dumping, meaning that appropriate preventative measures should be taken when there is reason to believe that wastes or other matter introduced into the

¹⁷ See R. Churchill and A. Lowe, *The Law of the Sea*, pp. 365-6.

¹⁸ Resolution LC, 41(3), reproduced in *International Organisations and the Law of the Sea. Documentary Yearbook*, Vol. 6, (1990), p. 332.

marine environment are likely to cause harm. This applies even when there is no conclusive evidence available to prove a casual relation. Furthermore, under Article 3.3, Parties are required to act so as not to transfer, directly or indirectly, damage or likelihood of damage from one part of the environment to another, or transfer one type of pollution into another.

The 'precautionary principle' has been widely utilised in international environmental law for approximately the last 15 years, supporting arguments that it has become customary international law. The principle is also a key element in international treaties and practice as well as in so-called "soft law", including for instance¹⁹:

- sustainability and optimum utilisation of fish stocks;
- amendment in the Convention for the Protection of the Mediterranean Sea against Pollution and Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft;
- Agenda 21 adopted by the 1992 UN Conference on Environment and Development (UNCED);
- Recommendation on the Principle of Precautionary Action adopted by the Commission under Paris Convention, prompted by the North Sea Conferences;²⁰
- Articles 1 and 2 Convention on the Protection and Use of Transboundary Water Courses and International Lakes, adopted by the UN Economic Commission for Europe (UNECE) in 1992;
- Framework Convention on Biological Diversity, adopted at the Rio Earth Summit in 1992 with subsequent Jakarta Mandate on Marine and Coastal Biological Diversity, adopted in 1993;²¹ and
- Practice under the LC from about 1990 prior to the 1996 Protocol.

From these general principles, especially the precautionary principle and due consideration to other affected States, the weight would seem overwhelmingly to fall on the side of caution. Both of these principles may have become general State

¹⁹See E. Hey, The precautionary approach – Implications of the revision of the Oslo and Paris Conventions, *Marine Policy*, Vol. 15, (1991), 244. See also P. Birnie and A. Boyle, *International Law & the Environment*, pp. 97-8.

²⁰Convention for the Prevention of Marine Pollution from Land-based Sources, *New Directions*, Vol. IV, p. 449. This is classified soft law. Recommendation 89/1 in D. Freestone and T. IJlstra, (eds.). *The North Sea: Perspectives on Regional Environmental Co-operation* (London, Graham & Trotman), 1990, p. 152, footnote 20.

²¹Framework Convention on Biological Diversity, 5 June 1992, *United Kingdom Treaty Series*, Vol. 1995, p. 51. R. Churchill and A. Lowe, *The Law of the Sea*, p. 394, footnote 126 cites M. Goote,

practice accepted as law, customary international law binding on all States. At the same time, it has been argued that:

“Whether the decisions (PARIS CONVENTION) are legally binding, like the London Convention amendments, is a moot point. While the Oslo Convention does not explicitly give the Commission the competence to adopt legally binding decisions of this nature..., each decisions begins, ‘the Contracting Parties to the Oslo Convention agree’, which may indicate an intention to conclude an agreement in simplified form.”²²

3.3 Summary

From this brief overview it seems reasonable to predict that controversy will continue in the CM over issues related to CO₂ injection and storage in the oceans and sub seafloor. CO₂ storage in general is a controversial issue, and CO₂ injection into the sub seafloor has in comparison been addressed only briefly. It is noteworthy that the SG decided definitely that CO₂ derived from fossil fuels is an industrial waste under the LC and Protocol definition. The final word will however be decided definitely in the CM. This means that the results from the technical national studies carried out by Australia, Japan, Norway, the U.S., and Canada, will probably carry much weight. Using these studies as a base, a political decision will likely be arrived at in the CM; either to consider CO₂ an industrial waste and specifically prohibit its injection into the sub seafloor under the LC and Protocol, or to amend the LC and Protocol to allow the injection. Results from further research are therefore needed concerning environmental effects of all the various processes including sub seafloor injection.

‘The Jakarta Mandate on Marine an Coastal Biological Diversity,’ *International Journal of Marine and Coastal Law*, MCL Vol. 12, 377-89 (1997).

²² R. Churchill and A. Lowe, *The Law of the Sea*, p. 367.

4 The North Sea Conference – Making CO₂ Storage an Issue?

Even though the LC is identified as the key international forum for addressing CO₂ storage, one should keep in mind that the North Sea Conference (NSR) has had a successful history of acting as an issue catalyst in OSPAR Convention²³. In this respect, the NSC may at its assembly in Oslo in March 2002 provide an avenue for affecting developments under the LC.

Since the early 1980s the North Sea States have convened periodically in meetings called North Sea Conferences (NSC) to discuss pollution problems in the North Sea.²⁴ At each conference a declaration has been adopted. These are considered ‘soft law,’ and have contained such items as undertakings to ratify and effectively implement existing treaties, proposals to press for certain action to be taken under existing treaties and organisations, and undertakings to take action outside existing agreements.²⁵ In spite of the ‘soft law’ status, these NSC declarations perhaps should not be underestimated.²⁶ Various measures adopted at the State and EU level under the Oslo Convention, as well as the Convention for the Prevention of Marine pollution from Land-based Sources²⁷, were largely prompted by the NSC.

Briefly, despite the development of international treaties and national regulations governing dumping and land-based emissions established in the 1970’s, indications were in the early 1980’s that parts of the North Sea were becoming severely polluted.²⁸ The Oslo Commission and the Paris Commission as well as national initiatives generally aimed at controlling behaviour rather than at changing it, and political impetus was needed. Starting in 1984 the NSC, made up of the eight North Sea coastal States, has become an institution. The London Declaration from 1987 was a turning point, with goals to phase out dumping of industrial waste and incineration at sea, to reduce inputs of nutrients to sensitive areas by approximately 50% between 1985 and 1995, and to reduce total inputs of hazardous substances reaching the

²³ R. Churchill and A. Lowe, *The Law of the Sea*, p. 367-8.

²⁴ See R. Churchill and A. Lowe, *The Law of the Sea*, p. 335, 372, 382, 390, 393-4.

²⁵ R. Churchill and A. Lowe, *The Law of the Sea*, p. 335 notes that organisations attempted affected include the EC. At the same time also noted is that the undertakings are often drafted in imprecise and ambiguous language.

²⁶ See also J. Skjærseth, *Issues in Environmental Policies – North Sea Co-operation – Linking international and domestic pollution control*, (Manchester, Manchester University Press, 2000), pp. 1-7. *Ibid.* focuses on a more comprehensive understanding of the changes that have occurred in the North Sea Co-operation, a better understanding of the role of both international and domestic institutions in the making and implementation of joint commitments; a gauge of the fruitfulness of taking different behavioural mechanisms as a point of departure in assessing the impact of institutions.

²⁷ Convention for the Prevention of Marine Pollution from Land-based Sources, *New Developments in Law of the Sea*, Vol. IV, (1974) (Paris Land-based Convention), p. 499.

marine environment by approximately 50% within the same time period. In addition to the international transformations made with respect to the treaties and institutions, a stream of new national legislation and administrative directives appeared. Sub national groups have changed their behaviour notably and emissions of regulated substances have decreased substantially in most of the North Sea States. The result has been significant collective reductions of dumping and incineration at sea, as well as of regulated organic substances, pesticides, heavy metals, and nutrients.

Related to the general CO₂ storage issues, so far no documents are prepared for the NSC.²⁹ The delegation from Belgium has raised the issues several times and is expected to present a document at the next conference preparatory meeting to take place 9-10 January, 2002.³⁰ At the same time, no written document has been received, and it is unclear why Belgium may be forwarding the CO₂ storage issue.³¹ The degree to which the NSC declarations can affect developments within the LC is unknown, specifically the SG and CM. However, if a declaration under the NSC is adopted, one could foresee a similar triggering effect within the LC as previously observed under OSPAR. North Sea States also Parties to the LC include Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom of Great Britain and Northern Ireland.³²

²⁸ See J. Skjærseth, *North Sea Co-operation*, p. 6-7 from which this overview is obtained.

²⁹ Correspondence with L. Nerbø, Norwegian Ministry of Environment, 8 November, 2001.

³⁰ Ibid.

³¹ Correspondence with L. Nerbø 13 November 2001.

³² The Commission of the European Communities does not appear on the list of Parties to the LC.

5 Conclusions

This report has documented that the issue of CO₂ storage has created controversies within the relevant committees of the London Convention (LC). It seems reasonable to expect that the controversy will continue under the LC in the CM if the issue is addressed in future meetings. That said, most of the significant developments took place in 1999, and currently a “wait and see” attitude seems to prevail. There exists no consensus as to whether or not CO₂ derived from fossil fuels should be considered as “industrial waste”, and as such be prohibited under the LC.

A key observation is that the issue of CO₂ storage has this far mainly been addressed in relation to *ocean* storage rather than *underground* storage. However, there do not seem to be clear distinctions between these two issues in relation to discussions under the relevant Conventions. Hence, perceptions are that any negative consequences associated with CO₂ ocean storage could have negative consequences also for underground storage, regardless of any positive findings in relation to CO₂ injection into the sub-seafloor. Another key observation emerges from discussions of *general principles* relating to the LC, especially the *precautionary principle*, for which the weight would seem overwhelmingly to fall on the side of caution. That said, the findings also indicate that in the event any form of CO₂ storage is viewed not to be the cause of adverse environmental impact, the LC and 1996 Protocol may be amended.

Owing to the political inclinations of the issue, it may be that a ‘purely’ scientific approach is not sufficient to convince other Parties that underground storage should gain acceptance as a legal and legitimate practice. Against this background, it would behove Statoil to make open discussion a priority in relation to the feasibility of CO₂ injection into the seafloor and other forms of CO₂ storage. In our opinion, this could include the provision of factual information regarding practical experience and communication of scientific knowledge. Moreover, it could be productive to maintain a dialogue at the various levels in the decision process. This involves working in parallel on the scientific, political and legal dimensions pertaining to CO₂ storage. In Norway, the relevant actors and institutions include the Norwegian Ministry of the Environment, in particular representatives to the Scientific Group and Consultative Meeting of the LC, as well as the NSC. Finally, we also note that the North Sea Conference (NSR) has had a successful history of acting as an issue catalyst in the PARIS CONVENTION,³³ and may at its assembly in Oslo in March 2002 provide an open avenue for affecting developments under the LC. One party (Belgium) to the NSC has raised the issue several times and is expected to present a document at the next meeting for the preparation of the Conference.

³³ R. Churchill and A. Lowe, *The Law of the Sea*, p. 367-8.