

Environmental Impacts of a Free Trade Agreement between China and Norway

Ole Kristian Fauchald and Haakon Vennemo



FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE



VISTA
ANALYSE

Environmental Impacts of a Free Trade Agreement between China and Norway

Ole Kristian Fauchald

okf@fni.no

Haakon Vennemo

haakon.vennemo@vista-analyse.no

January 2012



FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE

Copyright © Fridtjof Nansen Institute 2011

Title

Environmental Impacts of a Free Trade Agreement between China and Norway

Publication Type and Number

FNI-rapport 1/2012

Report 2011/33 Vista Analysis

Pages

140

Authors

Ole Kristian Fauchald and Haakon Vennemo

ISBN

978-82-7613-641-8
online version

ISSN

1504-9744

Abstract

The report assesses the likely impacts of the FTA for environmental policies, regulations and the physical environment. The analysis covers the main parts of the FTA: Trade in goods, trade in services and investments, and is limited to those parts of the FTA that are assumed to have the greatest effects. The analysis is based on scenarios setting out possible results of the negotiations. These scenarios build on existing obligations in the WTO seen in conjunction with the public documents that the negotiations are based upon. The report contains the following core elements:

1. The details of a baseline scenario.
2. Two scenarios based on possible outcomes of the negotiations - a free trade scenario and a green trade scenario.
3. Screening and scoping in light of input from consultations with public authorities, non-governmental organizations and the team of Chinese researchers.
4. Five case studies that focus on effects of the FTA on trade and investment between Norway and China, and the resulting environmental consequences.
5. Five regulatory studies that focus on effects of the FTA for environmental rules and policy.

Key Words

Environment, free trade agreement, China, Norway, environmental impact assessment, strategic environmental assessment, trade and environment

Orders to:

Fridtjof Nansen Institute
Postboks 326
N-1326 Lysaker, Norway.

Tel: (47) 6711 1900

Fax: (47) 6711 1910

Email: post@fni.no

Internet: www.fni.no

Contents

Acknowledgements	iv
Executive summary	v
1. Introduction	1
2. Main content of this assessment	3
3. Baseline scenario	4
3.1 Recent trends in trade and investment	4
Trade in goods	4
The policy environment for trade in goods	7
Trade in services	8
Investment	8
3.2 Baseline scenario for trade in goods	9
Import tariffs, Norway	9
Import tariffs, China	9
Non-tariff barriers (NTBs) Norway and China	10
Government procurement	13
Domestic measures aimed at controlling export	13
Intellectual property rights (IPR)	15
3.3 Baseline scenario for trade in services	16
Horizontal commitments	16
Specific commitments	17
Bilateral cooperation	19
Conclusions	20
3.4 Baseline scenario for investment	20
4. Screening	23
4.1 Trade in goods	23
4.2 Trade in services	24
4.3 Investment	26
5. Free trade scenario	27
5.1 Trade in goods	27
Tariffs	27
Non-tariff barriers	30
Export controls	32
Intellectual property rights (IPR)	33
5.2 Trade in services	35
Horizontal commitments	35
Specific commitments – Norway	36
Specific commitments – China	37
Domestic regulation	38
5.3 Investment	38
Establishment	38

Investment protection	39
5.4 Measures to avoid negative environmental consequences	41
General measures	41
Measures related to trade in goods	41
Measures related to trade in services	42
Measures related to investment	42
6. Green trade scenario	44
6.1 Introduction	44
6.2 General measures	45
6.3 Defining environmental goods and services	45
6.4 The environmental priorities of China and Norway	49
6.5 Trade in goods	50
Identification of ‘environmental goods’	50
Tariffs on environmental goods	50
Non-tariff barriers and environmental goods	51
Intellectual property rights	51
Other measures	52
6.6 Trade in services	55
Environmental services	55
Other issues	58
6.7 Investment	60
7. Scoping	63
7.1 Introduction	63
7.2 Free trade scenario	63
Case studies	63
General studies of regulatory and policy effects	64
7.3 Green trade scenario	65
General studies of regulatory and policy effects	66
Case studies	67
8. Environmental impacts of the free trade scenario	68
8.1 The ‘pollution haven’ and ‘race to the bottom’ hypotheses	68
8.2 Case study 1 – Export of fish from Norway to China	70
General	70
The life-cycle of farmed salmon	71
Environmental concerns related to production and export of farmed salmon	71
Methodology	72
Possible impact on the value of exported Norwegian salmon	72
Possible impact on the quantity of exported Norwegian salmon	73
Possible impact on the quantity of live salmon	74
Escapes and the risk of interbreeding	74
Salmon lice	76

Salmon feed	78
Discharges: CO ₂	80
Substitution impacts in consumption	81
Summary	82
8.3 Case study 2 – Export of clothing from China to Norway	83
The cotton life-cycle	84
Quantifying the increase in Chinese exports of cotton textiles	84
Environmental life-cycle impacts of increased exports of textiles from China	85
Carbon footprint	85
Economic responses, reactions and rebound effects	86
Discharges to water	88
Mitigating measures	89
8.4 Case study 3 – Services associated with mining	89
8.5 Mode 4 of supply of services	94
8.6 National treatment of investment	97
Introduction	97
Which measures are covered?	99
The non-discrimination obligation	99
Public authorities’ possibility of defending measures	101
Concluding remarks	102
9. Environmental impacts of a green trade scenario	104
9.1 Integration of general clauses on the environment	104
Introduction	104
Preambular text	104
Substantive provisions regarding objective and principles	107
Substantive provisions concerning rights and duties	110
Procedural rules	116
9.2 Fast track for environmental goods and services	119
Current barriers to trade and investment in environmental goods and services	119
Assessment of options for fast-tracking environmental goods	121
Assessment of options for fast-tracking environmental services	122
9.3 Export controls of goods	125
9.4 Intellectual property rights (IPR)	129
9.5 Case study 4 – Clean energy	133
9.6 Case study 5 – Carbon capture and storage (CCS)	135
Tables, figures and boxes	136
References	137

Acknowledgements

This report has been written by Ole Kristian Fauchald of the Fridtjof Nansen Institute, and Haakon Vennemo of Vista Analysis. Through the drafting process the authors have had close dialogue with a team at Beijing Normal University headed by Hu Tao and Mao Xianqiang. We thank them for fruitful discussions and constructive comments. Ginni Wiik and Eirik Grytli have provided excellent research assistance. We would also like to thank participants at the public hearing on environmental impacts of the Sino-Norwegian Free Trade Agreement held in March, 2011, and the workshop on the same topic held in June 2011. In particular we thank Friends of the Earth, ForUM and the Norwegian Trade Campaign for thoughtful written comments. Finally, our thanks go to the Ministry of the Environment for organizing the project, and to Beate Berglund Ekeberg, Helene Hoggen and Solveig Crompton for helpful comments to earlier drafts.

Executive summary

Environmental impact assessment of a free trade agreement between China and Norway

China and Norway have a long history of negotiating commerce. One early example is the Treaty of Peace, Friendship and Commerce, signed in Canton (Guangzhou) in 1847. The two countries are currently negotiating a free trade agreement (FTA). This will be Norway's first agreement conducted independently of EFTA since 1992, and could also become China's first agreement with a mainland European country.

In recent years it has become common to conduct environmental assessments (EAs) of free trade agreements. Examples involving China include New Zealand's National Interest Analysis of the China–New Zealand FTA (2008), the analysis of a potential FTA between China, Japan and Korea (Liu et al., 2010) and the analysis of a potential partnership and cooperation agreement between China and the EU (EU, 2008). The USA, Canada and other countries regularly conduct environmental assessments of free trade agreements. Depending on their timing and official status the assessments inform negotiators about pitfalls and opportunities, with the potential of influencing negotiation outcomes; or they analyse impacts of an FTA after the fact, providing impetus for national policy debates on follow up measures and safeguards. Given the limited number of its FTAs with other countries, Norway has not developed a tradition of conducting EAs of such agreements. This report therefore marks a first for Norway. It is written during a pause in negotiations and may therefore be of use during the next phase. The perspective and approach of the report may also prove of value for future Norwegian trade agreements.

A distinguishing feature of this report is that economic, regulatory and policy analyses are integrated throughout the assessment. The FTA is meant to have an economic impact – on trade and investment, on production and consumption. This economic impact is likely to have environmental consequences. An FTA may also delineate the borders between trade policy and environmental policy, with further consequences for the environment. Initial consequences may motivate changes in domestic environmental policy, leading to a second round of consequences for the environment, and so on. In short, an FTA is likely to have consequences for the environment through various channels. Some are economic in nature and some regulatory.

Important elements of the analysis have been worked out in collaboration between the Norwegian authors and a team from Beijing Normal University consisting of experts in analysing environmental consequences of free trade agreements. The assessment is built on publicly available information. It follows the methodology outlined in Fauchald and Vennemo (2011). One element of the project has been to communicate with the public and officials. We established a project website

(fni.no/Norway-China-FTA/index.htm), received some written comments from non-governmental organizations (fni.no/Norway-China-FTA/participation.htm) organized a public hearing on March 4 2011 (fni.no/Norway-China-FTA/hearing.htm), and have had several meetings with public officials, primarily from the Ministry of the Environment.

Free trade and green trade scenarios describe the outcome of trade negotiations

This assessment examines consequences under two scenarios for the outcome of the trade negotiations. The **free trade scenario** assumes that tariffs and non-tariff barriers are reduced and eventually eliminated, taking cues for the details from previous Norwegian and Chinese trade agreements as well as from the feasibility study conducted by China and Norway at the initiation of trade negotiations. From a Norwegian perspective, the Chinese trade agreements with Chile and Peru, two important fishery nations, provide interesting precedents. As to intellectual property rights, this scenario builds on the obligations of the TRIPS agreement, without including all the additional provisions found in EFTA's FTAs. For most services of interest (in particular mining, energy production and distribution, research and development services, environmental services), the scenario assumes that both Norway and China will undertake commitments to allow greater commercial presence of enterprises (mode 3 of supply), as well as increased availability of cross-border supply (mode 1) and supply through the presence of natural persons (mode 4). The free trade scenario also allows the national treatment (NT) obligation to be applied to the establishment of an investment, and investors to bring disputes to international arbitration. Public procurement is not part of this scenario, and measures to avoid negative environmental consequences of trade are limited to general exceptions.

The **green trade scenario** includes similar provisions as the free trade scenario, but complements them by adding measures to enhance the positive impacts of trade and to safeguard against negative impacts. Measures aimed at enhancing positive impacts are directed at environmental goods and services. There are several lists of environmental goods, including a list of 153 goods that has gained some prominence. The scenario does not explicitly endorse any list, but considers that goods that promote the indoor rural environment (primarily an issue for China) and goods that promote the global environment should be properly included. In a paper authored by the Chinese team (Hu Tao, 2011) a list of 227 goods is suggested. We assume that the green trade scenario will eliminate import tariffs on environmental goods entering China. Most tariffs into Norway have already been eliminated. With respect to non-tariff barriers on environmental goods, the green trade scenario covers a 'fast-track' for importing environmental goods, and export controls for environmentally harmful goods (primarily an issue for China). In addition, the scenario considers intellectual property rights in light of efforts to balance the need for improved environmental technologies (assuming that intellectual property rights will promote such technologies) with the need to disseminate such technologies. Relevant

suggestions can also be found in some of China's FTAs, e.g., those with Peru and Costa Rica. Further, the green trade scenario assumes that China and Norway will undertake not to apply countervailing duties and anti-dumping measures on environmental goods and services. Such duties and measures remain available if they can be justified on environmental grounds. This scenario considers that further liberalization of trade in environmental services may be both to the benefit and to the disadvantage of the environment. It is not limited to environmental services as defined in the Norwegian and Chinese WTO schedules. Regarding investment, the scenario considers linking the environmental performance of investors to the FTA, based on the OECD Guidelines for Multinational Investments.

The scenarios are compared to a **baseline scenario** characterised by WTO-commitments and existing bilateral trade and investment agreements between China and Norway. Since the green trade scenario takes off from the free trade scenario it is also possible to compare the green trade and free trade scenarios.

Based on processes of screening and scoping in light of input from consultations with public authorities, non-governmental organizations and the team of Chinese researchers, we have selected five 'case studies' and five 'regulatory studies' for assessment. The case studies focus on effects of the FTA on trade and investment between Norway and China, and the resulting environmental consequences. The regulatory studies focus on effects of the FTA for environmental rules and policy.

Environmental consequences of the free trade scenario

According to the 'pollution haven' hypothesis, liberalization of trade leads to environmental deterioration in developing countries. Despite fairly extensive research, this hypothesis has failed to generate much empirical support. We find that increased competition between Norwegian and Chinese businesses can lead to a 'regulatory chill' in some specific contexts, in particular related to CO₂ emissions – a fact to bear in mind when assessing the outcome of our analysis of the environmental consequences of the free trade scenario.

Salmon farming: The FTAs between China and Chile and China and Peru contain provisions that eliminate tariffs from an initial level of about 10% to zero over a few years. By comparison, the current tariff on Norwegian salmon is about 10%. Norway currently has a cap on salmon production from farming: if it is not lifted, the impact of an FTA will of course be negligible. Assuming that the cap is lifted, our analysis finds that exports of salmon will increase. Based on available studies, our best estimate is that the free trade scenario is likely to have the following consequences:

- 300 additional farmed salmon reaching waterways
- 1.4 million additional fish lice
- 11 000 tons additional fish catch, of which 122 tons over-exploited blue whiting
- 48 000 tons additional CO₂ emissions

The apparent precision of these figures does not reflect true accuracy. These are estimates produced by traditional life-cycle methodology, including an implicit assumption that marginal and future production technology is equal to current, average technology.

Readers unfamiliar with the problems of fish farming may find it difficult to assess the figures. As a percentage of the size of current problems they are low, mainly because China is a rather small export market for Norwegian salmon at present, and there are limitations as to how much bigger the market can be expected to become as a result of 10% lower prices. Assuming, not unrealistically, that a greater market share for Norwegian salmon will mean a smaller market share for, e.g., Scottish or Chilean salmon, the global environmental impacts will be smaller than the national impacts for Norway.

Services associated with mining: There is growing interest in Norway's mineral resources. Norwegian municipalities have set aside 2313 localities that may be used for mining activities (NGU and DM, 2011). China is a leading country in the mining and minerals industries, and has significant world market shares in a broad range of mineral products. Chinese enterprises are carrying out mining activities through mode 4 of supply (physical presence of Chinese miners) elsewhere in the world. On the basis of these considerations, as well as increases in other modes of supply, we foresee that Norwegian commitments in the mining sector are likely to have some negative regulatory and environmental impacts, see Table 1.1.

In particular, we emphasize the challenges that such commitments may have for compliance and enforcement of Norwegian rules and standards. Possible mitigating measures include the following:

- The Norwegian schedule could list reservations under mode 1 and mode 4 of supply relating to national treatment, to ensure future possibilities of establishing quality control with Chinese service suppliers or Chinese services.
- The FTA could include arrangements to promote cooperation among Chinese and Norwegian authorities and industries in the mining and environmental sectors.
- Measures could be taken to strengthen the capabilities of relevant Norwegian monitoring and enforcement authorities.

Table 1.1 Impacts of mode 1 – 4 commitments for Norwegian mining

Mode of supply	Primary (economic / trade) consequence	Regulatory consequences	Environmental consequences
Mode 1 Cross-border supply	Increased outsourcing of analytical and surveillance related activities to China. Limitations on the activities of the national institution for knowledge on bedrock, mineral resources, surficial deposits and groundwater (NGU) due to the prohibition against competition with private service suppliers.	Increased difficulty in regulating and controlling the quality of the service.	Increased risk of harmful emissions from accidents and ordinary operation.
Mode 2 Consumption abroad	No significant effects.		
Mode 3 Commercial presence	Some increase in Chinese investments relative to investment from other countries. Chinese investors may have a preference for exporting raw materials in short supply to China.	Chinese investors might challenge environmental requirements on the basis of investment protection rules included in the FTA or under the current BIT between China and Norway, e.g. non-discrimination in light of the potential need to strengthen environmental policy measures as the industry develops and environmental impacts accumulate (see also section 8.6 below).	Increase in foreign investment may lead to increased political pressure to exploit mineral resources that otherwise might have been left unexploited due to environmental concerns.
Mode 4 Presence of natural persons	Chinese enterprises will increase the use of Chinese workers on mining sites in Norway. This is particularly relevant due to the current lack of skilled work force in Norway.	While Norwegian legislation will apply to Chinese workers in Norway, significant compliance and enforcement issues are likely to arise.	Increased risk of harmful emissions from accidents and ordinary operations.

Mode 4 of supply of services: The free trade scenario assumes that Norway will undertake some commitments regarding mode 4 of supply. In 2006 Norway participated in a collective request to allow the presence of persons, in particular managers of contractual service suppliers, and independent professionals. Nevertheless, it is not unlikely that Norway will maintain major reservations.

In our view, the primary consequences of Norwegian commitments are that Chinese enterprises, including enterprises where Chinese investors own large shares, will significantly expand their use of Chinese professionals in Norway. Norwegian enterprises as well as foreign-owned enterprises will probably do the same. The likely result will be to lower the cost of services where Chinese personnel are used. One example with environmental relevance is the construction of wind power and mini-hydro facilities, see below. While lower cost of renewable energy is positive for the environment, compliance and enforcement problems may arise, especially given the language barrier. Depending on the character of the activity in question, compliance and enforcement problems may bring increased risk of harmful environmental effects from ordinary activities or from accidents that may occur as a result of these activities.

National treatment of investment: The national treatment (NT) provision is likely to cover all regulatory and economic measures that may affect an investment during its life-cycle. Trends in case law indicate that investors face a heavy burden of proof when invoking such provisions, and that claims are increasingly based on the fair and equitable treatment provisions rather than the NT provisions. We find that there is a low but slightly above-average (compared to BITs and other FTAs), and increasing probability that an investor will invoke the NT provision under a Sino-Norwegian FTA. Future clarification of the NT obligation is likely to establish a fair balance between the interests of investors and states, as seen from the perspective of investment tribunals. Adding an explanatory footnote to the NT provision could allow states to justify measures that otherwise would be regarded as unlawful under the provision. Such a footnote would increase the emphasis on the motivation of public authorities, and allow a broad range of arguments and materials to be brought forward during dispute settlement. This in turn could significantly increase the cost of proceedings.

Environmental consequences of the green trade scenario

Several recent cases have demonstrated the potential tensions between trade and the environment.

- China's policies in support of wind electricity and, recently, photovoltaic (solar) electricity have been criticized for constituting unfair trade practice and brought to the WTO.
- EU's policy of charging airplanes taking off from European airports for the carbon they emit has been criticized by US and Chinese airlines, and lawsuits are pending at the European Court of Justice.

- China's policy of limiting the export and production of rare earths on environmental grounds has been criticized by the main importing countries and brought to the WTO.

These cases are described in boxes in the main text of the report. In such cases, it is the principle of the green trade scenario that legitimate environmental interests shall prevail over trade interests.

Integration of environmental provisions: The report considers the inclusion of environmental provisions in the preamble and the main text of the FTA, and distinguishes between provisions on the purpose and principles of the FTA, on the rights and obligations of states, and on institutional and procedural issues. Preambular language, including statements on the relationship between the FTA and existing environmental agreements, is unlikely to have effects in the short term (first five years), but may well prove relevant to the interpretation and application of the FTA in the medium and long term. The report finds that there is some scope for extending and specifying the general exceptions, but that such extension is likely to have limited effects in practice. We conclude that the most effective approach to ensuring appropriate regulation of the relationship between the FTA and MEAs would be to adopt a provision setting out precise rules regarding the relationship between the FTA and a limited number of MEAs. Some recent FTAs contain provisions recommending or prohibiting the lowering of environmental standards in order to attract investment or gain competitiveness. In our view, such provisions, combined with a high-level consultation mechanism, could prove important in the rare cases where Norway or China lower their environmental standards in order to gain competitiveness.

Fast track for environmental goods and services: The green trade scenario seeks to stimulate trade in environmental goods and services and is tolerant towards trade barriers on environmentally harmful goods and services. Norway has a zero import tariff on most industrial goods, and an initiative to exempt specific environmental goods from tariff is unlikely to make much difference. Chinese tariffs on most environmental goods are 5–10%. Non-tariff barriers are in some cases the most important barriers to the innovation and manufacture of environmental goods. The report considers that the following measures can be taken to 'fast track' the import and export of environmental goods: eliminate tariffs on environmental goods (in practice relevant only as regards China); implement measures to secure increased trade facilitation; simplify access to export credit and other forms of lawful and generally accepted forms of support to stimulate export; undertake not to impose countervailing and anti-dumping duties on environmental goods; and ensure that communications and consultations regarding import and export of environmental goods are given high priority in relevant institutions established under the FTA. The report recommends that environmental services be redefined for the purpose of 'fast tracking', and that such 'fast tracking' should focus on commitments for modes 1 and 4 of supply.

Export control of goods: This issue is controversial at the time of writing, because in the case China – Measures Related to the Exportation of Various Raw Materials (WT/DS394/R) a panel has recently issued a report, which has been appealed. The main thrust of the panel’s finding is that the measures taken by China are unlawful under the WTO Agreement. Against this background, this report discusses the possibilities of increasing the flexibility and predictability for a state resorting to export controls for environmental purposes. The options recommended are including an interpretative note to the relevant general exception explaining the intentions of the parties as to its application to export controls; and an annex to the FTA in which the parties may list *general* and/or *specific* exceptions.

Intellectual property rights: The present report finds that there is room for a clearer emphasis on environmental issues in the context of intellectual property rights than at present under the TRIPS Agreement. It also observes that China and Norway seem to have similar positions on the relationship between intellectual property rights and biodiversity and recommends that this issue be explored further in the negotiations.

Clean energy and CCS: In 2010 China invested 30% more in new renewable energy than the second-ranking country, Germany, and 60% more than the third-ranking country, the USA. China has the highest capacity in the world of hydro, mini-hydro and wind, and is increasing its capacity in solar photovoltaics very rapidly. Norway has perhaps the largest hydro-capacity in the world in relation to its size and significant competence in hydro-technologies. Norway has considerable potential for onshore wind: the potential for further expansion remains large in China as well. Both countries have notable untapped potential for offshore wind energy production.

The promotion of clean energy and CCS will challenge a trade agreement at many different levels. Here we note: technology transfer and intellectual property rights; in order to bring down the costs of environmental services, greater openness concerning mode 4 of supply would be helpful; facilitated trade in goods that are important components of environmental services; and measures to ensure that public procurement is based on merit.

Apart from public procurement, which we have not considered, the other options are evaluated in the green trade scenario. Lowering the Chinese import tariff on environmental goods is probably the simplest to achieve. As noted, some liberalization of mode 4 of supply of services is included in both the free trade and the green trade scenarios, and may promote clean-energy technologies. Progress with respect to intellectual property rights would also benefit the interchange and promotion of clean-energy technologies.

1. Introduction

The People's Republic of China (China) and Norway signed a Memorandum of Understanding (MoU) on 18 September 2008 to undertake negotiations of a Free Trade Agreement (FTA) between the two countries. According to the MoU,

The Free Trade Agreement will aim at promoting trade in goods and trade in services, while facilitating investment flows between the People's Republic of China and the Kingdom of Norway, contributing to sustainable economic growth as well as enhancing the cooperation between their enterprises, thus improving the welfare and living standard of their people.

The Norway–China Free Trade Agreement – Joint Feasibility Study (hereafter the Feasibility Study) presents these general conclusions on the expected outcomes of the negotiations:

A possible FTA between China and Norway would be expected to eliminate tariffs on substantially all the trade between the two countries and addressing non-tariff measures, while taking into account sensitivities on both sides. ... Further liberalisation of trade in services between the two countries should be aimed at creating mutual beneficial and tailor made solutions for China and Norway. In relation to investment, the future FTA between China and Norway would result in greater transparency of regulations and laws that affect both direct and portfolio foreign investments, more liberalised regimes which will facilitate investments in each country, and a more stable policy framework for investors. (Feasibility Study, Ministry of Trade and Industry 2008: 5)

China is Norway's second largest trading partner outside the EU. The envisaged FTA between China and Norway will be one of several agreements relevant to commerce between the two countries.¹ It may encompass or replace in whole or in part some earlier agreements.

This is the first bilateral FTA to be negotiated by Norway on a bilateral basis since 1992, as most such agreements are negotiated through EFTA. No environmental assessments (EAs) have been conducted as regards bilateral FTAs in EFTA. Nor have EAs been conducted on an independent basis, e.g., by academic institutions.

China has negotiated various bilateral FTAs in recent years,² and these have to some extent been subjected to EAs. Its FTA with New Zealand was initiated by a Joint Study Report (2004) which analysed potential impacts of future negotiations in different dimensions, including environmental impacts. The final FTA was made subject to a National Interest

¹ A list of relevant bilateral agreements between Norway and China is set out in the Methodology Report.

² See <http://fta.mofcom.gov.cn/english/index.shtml>.

Analysis by New Zealand (2008) that includes a brief assessment of environmental effects. A possible Partnership and Cooperation Agreement between China and the EU has been the subject of an extensive ‘sustainability impact assessment’ (SIA) emphasizing environmental features (EU, 2008) and a team of researchers from Beijing Normal University and other institutions have carried out an EA of a possible FTA between China, Korea and Japan (Liu et al., 2010).

EAs of free trade agreements are quite common in some other countries, most prominently the USA³ and Canada.⁴ The EU has carried SIAs of several FTAs and other economic cooperation agreements.⁵ In recent years, some developing countries, in particular Latin American, have started to undertake EAs of their FTAs.⁶

Nomenclature is not settled in this area. The term ‘environmental assessment’ (EA) is used as shorthand for this analysis, in line with Canadian usage. The content of the analysis and process also fits with the term SEA (for Strategic Environmental Assessment (or Analysis)), or EIA (environmental impact assessment).

This EA follows the modalities and methodology outlined in Methodology Report (Fauchald and Vennemo, 2011). It is based on publicly available information about the FTA negotiations between China and Norway.

³ See <http://www.ustr.gov/trade-topics/environment/environmental-reviews>.

⁴ See http://www.international.gc.ca/enviro/assessment-evaluation/trade-commercial.aspx?menu_id=21&menu=R.

⁵ See <http://ec.europa.eu/trade/analysis/sustainability-impact-assessments/>.

⁶ OECD 2007:67–68 ‘The United States, in particular, has encouraged its trade partners to conduct assessments. Morocco, Jordan, Chile, and Singapore for example have conducted assessments in connection with RTAs negotiated with the United States, but these reports are generally not publicly available. ... In addition, some countries have conducted assessment studies with financial and technical support from the United Nations Environment Programme (UNEP).’ UNEP has sponsored country studies covering more than 20 countries.

2. Main content of this assessment

This assessment is built around a baseline scenario (chapter 3), a free trade scenario (chapter 5) and a green trade scenario (chapter 6). The baseline scenario assumes that no FTA between China and Norway is agreed, and analyses the patterns of trade and investment given this assumption. The free trade scenario assumes that an FTA is agreed, lowering trade and investment barriers with a view to facilitating trade and investment between the two countries. The green trade scenario assumes that particular attention is paid to facilitating sustainable, green trade and investment; further, that, to this end, some barriers are lowered to facilitate environmentally beneficial trade and investment, and some environmental safeguards and policies are strengthened.

The difference between the baseline scenario on the one hand and the free trade and green trade scenarios on the other defines the economic and regulatory impacts of the FTA. However, in practice any analysis of an FTA will have to focus on impacts that are likely to be important from political, social, economic or environmental perspectives. This assessment conducts a screening based on the Methodology Report (chapter 4) and scoping (chapter 7) of impacts for their environmental implications, and concludes this process by identifying a limited number of sectors and issues for further analysis.

The sectoral studies are referred to as case studies here. There are three case studies in the free trade scenario (fish, clothing, services associated with mining) and a further two in the green trade scenario (clean energy and carbon capture & storage). In addition, the free trade scenario analyses the impacts of mode 4 supply of services, and national treatment of investment. The green trade scenario analyses the impacts of integrating general clauses on the environment, of fast-tracking for environmental goods and services, of export controls for environmental purposes, and of intellectual property rights.

3. Baseline scenario

In accordance with good practice in EAs (see Methodology Report) we develop a baseline scenario that provides a yardstick for evaluating impacts of the free trade and green trade scenarios. One main question is how to deal with the still-ongoing negotiations in the WTO. For Norway, the major implications of a conclusion of the Doha Round are likely to be reduction of tariffs and subsidies in the agricultural sector as well as extension of commitments in the services sector. For China, with its broader range of trade restrictions, conclusion of the Doha Round might have more significant effects, e.g. for tariffs and market access for goods, commitments regarding service sectors, and investment-related issues (through service commitments). Given the high level of uncertainty regarding the results of the Doha Round, as well as our limited access to information about countries' positions in the negotiations, in particular those of China, we decided against basing the baseline scenario on a potential conclusion of the Doha Round. As conclusion of the Doha Round would presumably facilitate trade and investment between Norway and China, thus reducing the relative effects of a Sino-Norwegian FTA, our choice of baseline scenario is more likely than not to involve an over-estimation of the potential effects of such an FTA.

The baseline is defined by the existing legal commitments of the negotiating partners: in the context of these negotiations, the commitments undertaken by Norway and China in the WTO as well as bilateral agreements in force between the parties. We have adjusted this starting point on the basis of relevant unilateral decisions of the negotiating parties to liberalize, in particular regarding the application of lower tariffs than those set out in the WTO Schedule of Concessions.

3.1 Recent trends in trade and investment

To introduce the baseline scenario we review recent trends and the present situation with respect to trade and investment volumes between China and Norway.

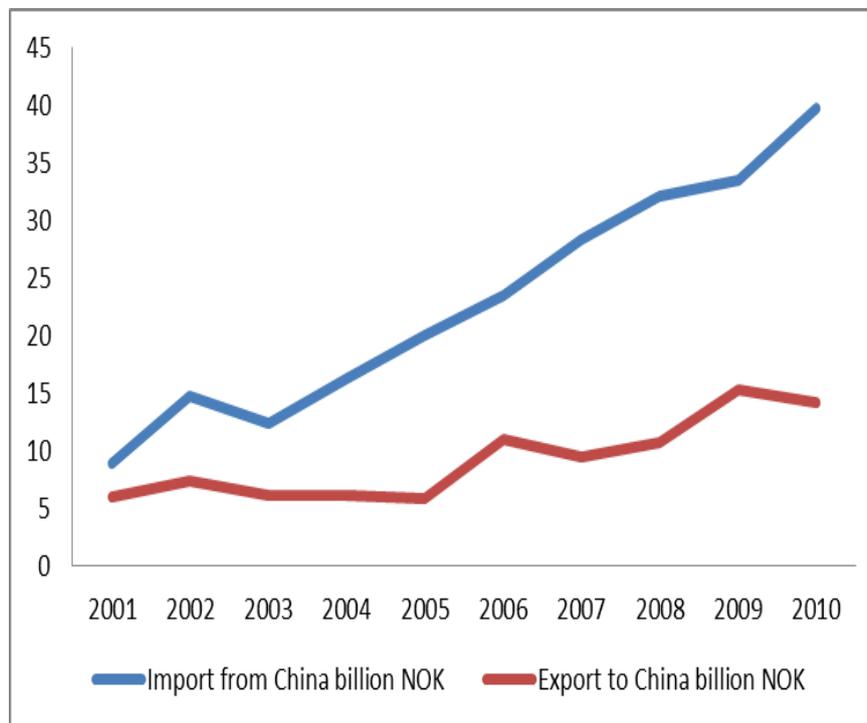
Trade in goods

For trade in goods, both imports from China and exports to China are increasing, with imports increasing the most (see Figure 3.1). Note that these figures given there do not include, e.g. Norwegian petroleum exported to Amsterdam or elsewhere, and later imported to China from there. This is the case for other Figures and Tables in this section as well.

Clothing is the main *import* item to Norway from China, followed by office machines including PCs and telecommunications equipment. In 2010, five groups (2-digit HS) accounted for two-thirds of all imports (see Figure 3.2).

'Fish and marine products' are the main *export* item from Norway to China, followed by metals, and industrial machines. In 2010, five groups (2-digit HS) accounted for 60% of all exports (see Figure 3.3).

Figure 3.1 Trends in Norwegian imports from China and exports to China, NOK billion



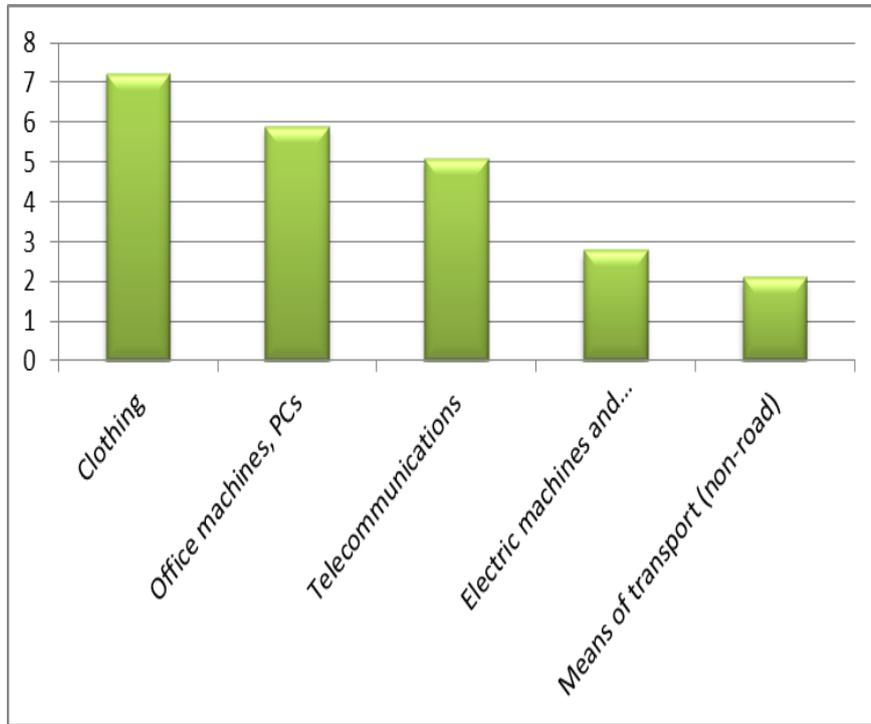
Note: Trade in goods, in current NOK. Source: Statistics Norway. Chinese statistics may give a different answer. In 2006, for example, Norwegian statistics recorded a trade volume with China of USD 5.4 billion whereas China recorded USD 2.95 billion. See Feasibility Study.

In general, trade between the two countries seems associated with comparative advantages. Norway exports fish and metals to China; China exports clothes, PCs etc. to Norway, and the two countries acknowledge the role of comparative advantages in the trade negotiations. Let us cite from the summary published by China following the sixth round of Sino-Norwegian FTA talks (emphasis added):

China's Machinery and Electronic Products took up nearly 50% of the export to Norway including vessels, electronic appliance, computers, communication and mechanical equipment; and the products like chemical fertilizers, fish products, and petrochemical products took up a large proportion of China's import from Norway, *which obviously embodied the mutual complementarity of commodity structure of the bilateral trade*. Additionally, the cooperation of both countries in the fields of seamen labor services, information & communication, pharmaceuticals, is also becoming closer and closer.⁷

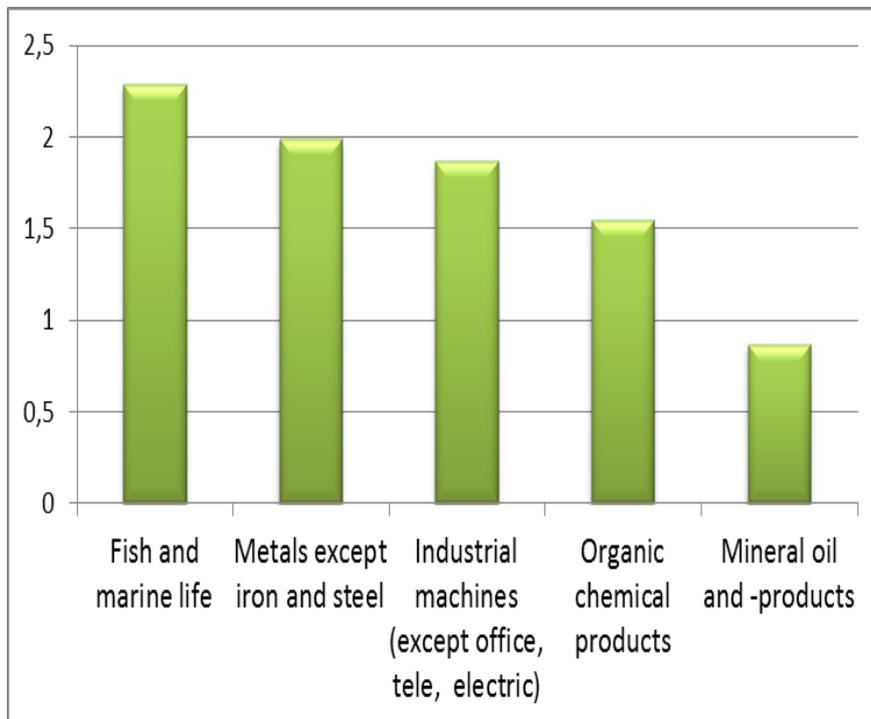
⁷ http://fta.mofcom.gov.cn/enarticle/ennorway/ennorwaynews/200912/1948_1.html

Figure 3.2 Main import items to Norway from China, NOK billion



Note: Unit billion NOK. Year 2010. Source: Statistics Norway.

Figure 3.3 Main export categories from Norway to China



Note: Unit billion NOK. Year 2010. Source Statistics Norway.

The policy environment for trade in goods

The development in goods trade is correlated with trends in the policy environment for trade. Tariffs and non-tariff barriers are sometimes considered jointly in the form of tariff-equivalent *effective rates of protection*. Fæhn (2002) explains this theory, and estimates effective rates of protection for the Norwegian economy in 1989, 1991 and 1994. This was prior to Norway's WTO accession, in which import quotas were turned into tariff equivalents. For instance, in 1994 tariffs on agricultural goods were zero and domestic production was protected by quotas. Hence these estimates do not say anything about the tariff equivalents of today's non-tariff barriers. The pattern of protection registered by Fæhn is similar to that noted by the WTO (2010): extensive protection of agricultural goods and almost free trade otherwise.

The World Bank's Ease of Doing Business surveys indicate that neither China nor Norway currently has particularly cumbersome export and import procedures.⁸ However, while Norway's procedures seem to be among the least cumbersome in the world, those of China are about the global average. For instance, Norwegian procedures require seven days of document preparation and handling, and \$729 for a standardized cargo of goods to be imported to Norway, whereas in China the same procedure requires 24 days and \$545. The global average is 26 days.

The policy environment for China's trade is heavily influenced by the country's joining the WTO in 2001. WTO accession led to the easing and eventual lifting of the tariff-rate-equivalent export quotas on Chinese textiles and clothing, which has been shown to have had a major impact (see e.g., Vennemo et al., 2008). Above we noted that clothing is China's main export category to Norway today. On the import side, WTO accession led to the gradual lifting of industrial and agricultural quotas and tariffs, thereby opening up for more imports to China.

The Chinese policy environment for trade in goods is also likely to be influenced by cases brought against China in the WTO. Of particular interest to this study, China has been subject to two complaints concerning environmental measures. The first is China — Measures Related to the Exportation of Various Raw Materials (DS398, 395, 394), in which China, *inter alia*, invokes environmental reasons to justify export duties and quotas on bauxite, coke, fluorspar, magnesium, manganese, silicon metal and zinc. The panel rejected the Chinese arguments,⁹ but this decision was appealed by China on 31 August 2011. The second case is China — Measures Concerning Wind Power Equipment (DS419), in which the USA has claimed that Chinese measures providing grants, funds, or awards to enterprises manufacturing wind power equipment are in violation of article 3 of the SCM Agreement. So far, this case has been subject to consultations only, in which Japan and the EU have joined in. In addition to these two cases formally brought to the dispute settlement mechanism, the EU, USA and

⁸ <http://www.doingbusiness.org>

⁹ WT/DS394/R.

Japan have given consideration to bringing a case to the WTO concerning Chinese policies regarding ‘rare earths’.¹⁰

Trade in services

Data from the UN show that Norway’s exports of services to China are 0.1% of Norway’s total exports of services (see Table 3.1). The amounts involved are small, and exports of services to China make up around 220 million NOK, less than each of the five main items of goods exported to China.

Table 3.1 Export of services from Norway to the world, and to China. USD billion

World	38.6
China	0.038

Source: www.unstats.un.org

The main categories of services sold from Norway to China are ‘other business services’, and the most important subcategory under this heading is ‘miscellaneous business, professional and technical services’. In general, maritime services are important for Norwegian trade, but exports of such services to China are probably registered elsewhere in the statistics.

Imports of services to Norway from China make up 0.2% of all Norwegian imports of services (Table 3.2). ‘Other business services’ make up most Norwegian imports from China.

Table 3.2 Imports of services to Norway from the world, and from China. USD billion

World	36.8
China	0.066

Source: www.unstats.un.org

Investment

More and more Norwegian companies are investing in China, and Chinese companies have started to invest in Norway. According to official Chinese figures, Norway had made 258 separate investments in China at the time (2008) of the Feasibility Study. That year saw the establishment of three Chinese companies in Norway: ZTE, COSCO and Air China.

¹⁰ See <http://ictsd.org/i/news/bridgesweekly/114203/>.

3.2 Baseline scenario for trade in goods

We assume that the baseline scenario can build on the current most-favoured nation (MFN) applied tariff rates as detailed in WTO (2010). See also the general comments with respect to the Doha Round above. Key points concerning the current tariff rates are as follows:

Import tariffs, Norway

Norwegian tariffs on goods are concentrated on a sub-set of agricultural goods. According to WTO (2010) the simple most-favoured-nation (MFN) average of import tariffs on agricultural goods is 43.2%. About half of the agricultural import volume is tariff-free. For non-agricultural goods the average tariff rate is only 0.5%, and with 97% of such import tariff-free. Import tariffs are unimportant for tax revenues in Norway, representing only 0.3% of the total.

Among agricultural products, animal products have the highest MFN tariffs – almost 140% on average. Some products here have very high tariff rates, e.g. live ducks weighing less than 185 grammes (555%) and frozen boneless meat of bovine animals (119 NOK/kg). The tariff on dairy products is also high, 64% on average, but may be less relevant for imports from distant countries like China. Physical conditions for imports may be better for cereals and preparations, which have an average MFN applied tariff of 52% (max 494%). Rice has a tariff of 1.74 NOK/kg, but half of the tariff lines in this subheading are tariff-free. China has a strong industry in oilseed fats and oils. The Norwegian average MFN applied tariff on such items is 31% (max 295%).

Among non-agricultural goods, clothing is almost the only category with a significant Norwegian tariff – 10.7% for most clothing items. That tariff is confined to processed products, while textiles have an average tariff of 0.5%. For these products, Norway practises ‘tariff escalation’, whereby tariff rates increase with the degree to which the products are processed.

Import tariffs, China

Norwegian export faces an average import tariff to China of 9.0% (WTO 2010). One fifth of exports are tariff-free. China has an average MFN applied tariff on agricultural goods of almost 16%. Only 0.7% of its import is tariff-free (see Table 3.3 below). The country has an average tariff on non-agricultural goods of almost 9%. Around half of non-agricultural import is tariff-free. Some 3% of Chinese tax revenues come from import tariffs.

The average tariff on agricultural goods is fairly evenly distributed among subcategories and China does not impose very high tariffs on any goods. The average import tariff on fish is lower than the average for (other) agricultural goods, at 10.7%. The import tariffs on the various categories of fish are of interest to Norway. Frozen Atlantic salmon is subject to an import tariff of 10%. Fresh or chilled salmonidae (excl. species of trout) has 12%, prepared and preserved salmon also 12%. Frozen mackerel, cod and haddock are also important to Norway

(Feasibility Study 2008). Import tariffs for mackerel and cod are 10%, and 12% for haddock.

As to non-agricultural goods, the average MFN tariffs are also quite even across goods. Non-electrical machinery – an important category for Norway – has an average tariff of 7.8%, with a maximum of 35% and a tariff-free share of 9%. Transport equipment has a tariff of 11.5%.

Some authors have argued that effective tariff rates in China are lower than the nominal tariff rates because of special economic zones, other discretionary measures, and trade through Hong Kong (Fisman and Wei, 2004; Vennemo et al., 2008).

Table 3.3 Average applied MFN import tariffs per main category, %

Norway		China	
Agricultural goods	Non-agricultural goods	Agricultural goods	Non-agricultural goods
43.2	0.5	15.7	8.7

The baseline scenario assumes that applied tariffs will remain at approximately the same level as currently. The main driver for lower tariffs seems to be the Doha negotiations, and, having decided not to include any impact from these negotiations on the baseline, we do not see compelling evidence for lower tariffs in the baseline. Nor do we see compelling evidence for higher tariffs in the baseline. The existing WTO agreement sets maximum tariffs on most goods, and wherever applied tariffs are lower than the maximum there seems to be an expectation not to increase them.

Non-tariff barriers (NTBs) Norway and China

Trade facilitation is one of the topics on which countries have made significant progress during the Doha negotiations.¹¹ We assume that some trade facilitation is likely to result from the general agreement that has been achieved during the negotiations, regardless of whether there will be a conclusion of the negotiations. However, considerable uncertainty remains concerning the specific content and modalities of the trade facilitation that will occur and the specific trade effects of such trade facilitation for trade between Norway and China. Against this background, we find it appropriate to apply a conservative estimate of the potential trade facilitation to be expected under the baseline scenario.

The Global Enabling Trade Report, published by the World Economic Forum (WEF 2010), includes a system of indexes where countries are

¹¹ See Draft Consolidated Negotiating Text of 21 April 2011, WTO doc. TN/TF/W/165/Rev.8.

scored on several parameters including non-tariff barriers (NTBs). The score on the non-tariff barrier indicator is explained as follows:

This index is constructed as the average of two NTM-related variables. The variables included are the percentage of trade affected by non-tariff measures (NTMs) and the average number of notifications for products affected by NTMs, for products with imports larger than 0. Politically motivated NTMs, such as embargos, have been excluded.

In 2010 China obtains a score for non-tariff barriers of almost 24, putting it at no. 34 in the world (34th best). Norway scores 4, making it no. 9 in the world. Thus, the potential for reducing NTBs seems to be significantly higher for China than for Norway.¹²

The WTO Trade Policy Review of China carried out in June 2010 (TPR China 2010) focused on NTBs. The WTO Secretariat Report on China's Trade Policy notes that:

Apart from import prohibitions (to protect public interest, environment, or in accordance with international commitments), China has continued to use non-tariff border measures (such as import and export licensing) as instruments of its trade and industrial policies. State trading is still used to manage trade in certain imports and exports of, *inter alia*, some agricultural products and crude and processed oil.

... The General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) has reformed its entry-exit inspection procedures and introduced a direct release system to facilitate trade.¹³

In 2009, *import permits* were required for a total of 95 product groups, including ozone-depleting substances, old mechanical and electronic products, toxic materials, and radioactive isotopes and their compounds. Some of these may be positive from an environmental point of view, others negative. We will discuss the implications of free and freer trade later. In addition, a system of automatic import licenses was applied for statistical purposes, covering 560 product groups, including poultry, vegetable oil, tobacco, chemical fertilizers, coal, natural rubber, iron ore, crude and processed oil, steel, machinery products, automobile components, and ships. Products allowed to be imported only by state-trading enterprises or other enterprises fulfilling certain requirements (*inter alia* in order to protect the environment and exhaustible resources), included grain (hereunder wheat, maize, and rice), sugar, cotton, chemical fertilizer, tobacco, and crude oil and processed oil.¹⁴

¹² UNCTAD is said to maintain a database for NTBs as part of its TRAINS database. We accessed TRAINS but were not able to find information on NTBs for China and Norway.

¹³ WT/TPR/S/230/Rev.1 at 24, paras. 3 and 4.

¹⁴ Ibid. at 34, paras. 34–36.

Preshipment inspection requirements are required for, *inter alia*, imports of solid waste used as raw materials and certain used electronic products deemed to affect public health and the environment. As noted by the WTO Trade Policy Review, ‘China has designated some foreign institutions to conduct PSI and to issue certificates. It is not clear to the Secretariat whether China sends people or institutions abroad to conduct PSI inspections.’¹⁵ We are not aware that such PSIs are conducted in Norway for goods to be exported to China. In 2009, China required sanitary and phytosanitary (SPS) inspection for a total of 4,815 product groups. The lists of products for which such inspection is required change significantly from year to year. Reforms, including inspection at destination, have been introduced in order to facilitate trade.¹⁶

Less than 20% of Chinese *product standards* are mandatory.¹⁷ China operates a compulsory product certification system in order to ensure human health and safety, life and health of animals and plants, and environmental protection, among other things.¹⁸ It has signed regional and multilateral mutual recognition agreements on certification and accreditation, and has established relevant institutions in accordance with ISO standards.¹⁹

The Agreement between Norway and China on Economic, Industrial and Technical Cooperation (25 September 1980, Beijing) and the Long Term Trade Agreement between Norway and China (15 June 1982, Oslo) established a Mixed Commission charged, *inter alia*, with dealing with NTBs. In addition, more specific agreements addressing NTBs include the Protocol between Norway and China on certification and inspection procedures regarding fertilizers (30-06-2000, Oslo), the MoU between Norway and China on Cooperation in the Field of the World Trade Organisation Agreement on Sanitary and Phytosanitary Measures (6 November 2008, Beijing), and the Agreement on Fisheries Cooperation (26 March 2007, Beijing), the latter set to expire after five years. To our knowledge there has not yet been agreement to extend it. While these agreements provide a framework for resolving differences regarding NTBs through various procedures, they do not establish mutual recognition agreements or substantive rules regarding the adoption or content of NTBs.

In conclusion, the baseline scenario assumes that there will be a generally low level of NTBs, but that there is a high degree of uncertainty and the level of NTBs may differ significantly from sector to sector. This scenario further assumes that political factors are likely to raise the level of uncertainty, at least in the short term, and that technical cooperation between Norway and China within the current framework will contribute to a considerable long-term reduction of this uncertainty.

¹⁵ *Ibid.* at 25, para. 12.

¹⁶ *Ibid.* at 37–88, paras. 51–52.

¹⁷ *Ibid.* at 35, para. 43.

¹⁸ *Ibid.* at 38, para. 55.

¹⁹ *Ibid.* at 39, para. 59.

Government procurement

China is an observer to the WTO Government Procurement Agreement (GPA) and has since December 2007 negotiated for accession. To our knowledge, no final decision has yet been taken concerning China's accession.²⁰ According to the TPR of China, 'China has not signed any bilateral, regional, or multilateral agreement on government procurement'.²¹ Chinese accession to the GPA will promote transparency and could significantly reduce trade-related problems associated with corrupt practices.

Domestic measures aimed at controlling export

China's Accession Protocol (WT/L/432) dealt with issues relevant to restrictions on export. Section 5 liberalized the right to trade, but retained the right to subject various products to *state trading*, including the right to export. The products covers 134 HS sub-headings (8-digit level), and include tea, rice, corn, soy bean, tungsten ore, ammonium paratungstates, tungstate products, coal, crude oil, processed oil, silk, unbleached silk, cotton, cotton yarn, woven fabrics of cotton, antimony ores, antimony oxide, antimony products, and silver. *Export licenses and quotas* are addressed in section 8 para. 2 of the Accession Protocol, which states that 'foreign individuals and enterprises and foreign-funded enterprises shall be accorded treatment no less favourable than that accorded to other individuals and enterprises'. According to section 9 para. 2 of the Protocol, *price controls* for exported goods would be limited to the following categories of products: tobacco, edible salt, natural gas, and pharmaceuticals, as well as products subject to government guidance pricing: grain, vegetable oil, processed oil, fertilizer, silkworm cocoons, and cotton. Section 11 para. 3 of the Protocol obliges China to eliminate all *taxes and charges* applied to exports unless specifically provided for in Annex 6, which lists 84 HS numbers, overwhelmingly metals and some chemicals, for which maximum export taxes and charges range between 20% and 40 %.

In addition to the commitments listed in the Accession Protocol, several undertakings in the Working Party Report on China's accession to the WTO (WT/ACC/CHN/49) are legally binding.²² Of particular interest in relation to export controls are commitments set out in paras. 18 (non-discriminatory treatment of enterprises), 46 (sales of state-owned enterprises), 62 (price controls), and 83(d) (right to export for foreign-invested enterprises).

In general, Chinese rules and procedures regulating export mirror those applied to import. In addition, China applies a regime of export taxes, applied 'with a view to curtailing exports of certain products, including restricting exports of highly polluting and high-energy-consuming

²⁰ According to the TPR, China has submitted a revised offer which in 2010 was subject to consultations, *ibid.* at 39, para. 62.

²¹ *Ibid.* at 41, para. 69.

²² See section 1 para. 2 of the Accession Protocol and para. 342 of the Working Party Report.

products; promoting environmental protection; improving sustainable economic development; and conserving natural resources.’ China argues that such measures are in accordance with Art. XX of GATT.²³ Moreover, value added taxes are frequently not fully rebated upon export. The WTO Secretariat made the following assessment of the effectiveness of a broad range of export restraints, including export prohibitions, quotas, licensing requirements and taxes, as well as less-than-full rebate of VAT on exports and state trading arrangements:

... export restraints may not be the best way to achieve some of the objectives/rationales mentioned above. In particular, restricting the export of some highly polluting or high-energy consuming products is not the most economically efficient way to protect the environment or reduce energy consumption. Nor are export restraints the best way to conserve natural resources. China is starting to consider more suitable internal (rather than trade) measures to achieve these objectives. Although the Government increased its export restrictions on rare earth by, for example cutting export quotas or increasing export taxes, it has imposed domestic production caps on rare earth and is considering levying an environmental tax on the production/extraction of natural resources during the 12th Five-Year period (2011–15), with a view to preserving non-recyclable natural resources and protecting the environment.²⁴

Export prohibitions and licensing are generally applied to implement China’s obligations under environmental treaties, such as CITES and the Basel Convention. A total of almost 300 groups of products are subject to export prohibition or licensing.²⁵ China also controls export by requiring certain goods to be exported through state trading enterprises, for the purposes of ‘ensuring stable domestic supply; avoiding drastic price fluctuations in international markets; safeguarding food safety; and protecting exhaustible and non-recyclable natural resources and the environment.’²⁶

²³ Ibid. at 43, para. 77.

²⁴ Ibid. at 44.

²⁵ Ibid. at 45, paras. 82 and 86.

²⁶ Ibid. at 46, para. 88.

Box 3.1 Panel Report: China – Measures related to the export of various raw materials

The dispute concerns four types of export restraint on bauxite, coke, fluorspar, magnesium, manganese, silicon carbide, silicon metal, yellow phosphorus and zinc. Upon its accession to the WTO, China undertook to eliminate all export duties except for a number of products listed in an Annex to its Protocol of Accession. China also committed not to apply export quotas. The Panel found that China's export duties were inconsistent with the commitments that China had agreed to in its Protocol of Accession and that export quotas imposed on some of the raw materials were inconsistent with WTO rules. China's Protocol of Accession did not allow the general exceptions in Article XX of the GATT 1994 to justify its export duties. Even if China were able to rely on certain exceptions available in the WTO rules to justify its export duties, it had not complied with the requirements of those exceptions. China was not able to demonstrate that it imposed these restrictions in conjunction with restrictions on domestic production or consumption of the raw materials so as to conserve the raw materials, or that its export duties and quotas would lead to a reduction of pollution in the short- or long-term and therefore contribute towards improving the health of its people. The Panel also found that certain aspects of China's export licensing regime are inconsistent with WTO rules. Findings of the panel have been appealed by China and the US.

Source: http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds394_e.htm

We assume that those export restrictions that are related to China's implementation of environmental treaties will remain unchanged. The description of Chinese mechanisms to control export in the TPR indicates that they are fairly well established and are not frequently amended. On the one hand, we note that some Chinese export restrictions are subject to dispute settlement in the WTO (see the box below),²⁷ and that criticism has been directed against export restrictions on 'rare earths' (see section 3.1 above). On the other hand, future competition for scarce natural resources may provide China with strong incentives to maintain or introduce new export restrictions. Against this background, we assume that China's use of export restrictions will remain fairly stable, whereas products subject to such restrictions may vary over time.

Intellectual property rights (IPR)

Chinese policies regarding intellectual property rights were key issues during negotiations of China's accession to the WTO. While IPR are not

²⁷ China – Measures Related to the Exportation of Various Raw Materials, DS 394, 395 and 398, cases initiated by the USA, the EU and Mexico. The panel report (WT/DS394/R) has been appealed by China (WT/DS394/11) and the USA (WT/DS394/12).

singled out for special treatment in China's Accession Protocol, such issues were dealt with in great detail in the Working Party Report.²⁸ The TPR of China shows that the domestic use of intellectual property rights in China has increased rapidly in recent years, and that China's reforms of rules and procedures are effective in practice.²⁹ The baseline scenario assumes that China will continue to encourage domestic applications for IPR, and further reinforce its implementation of existing rules and procedures to secure such rights. We also assume that China will promote a 'balanced' approach to IPR by supporting technology transfer, availability of compulsory licensing, capacity building, as well as benefit sharing relating to genetic resources.

3.3 Baseline scenario for trade in services

Trade in services between Norway and China is regulated by the General Agreement on Trade in Services (GATS), including the respective Schedules of specific commitments of Norway (WTO doc. GATS/SC/66/) and China (WTO doc. GATS/SC/135). Our focus in the following is on the specific commitments as set out in the Schedules. There are three main distinctions that are essential to our analysis of trade in services:

- The distinction between horizontal commitments and specific commitments. This distinction follows from the respective schedules. Horizontal commitments (including restrictions) apply across sectors, while specific commitments apply for the specific sector only.
- The distinction between commitments regarding market access, as defined in article XVI of GATS, and national treatment, as defined in article XVII of GATS. In most cases, China and Norway have undertaken the same range of commitments under both provisions.
- The distinction between four 'modes of supply': (1) cross-border supply, (2) consumption abroad, (3) commercial presence and (4) presence of natural persons, as defined in article I:2 of GATS.

Horizontal commitments

The *Norwegian* Schedule sets general restrictions for all sectors on modes 3 and 4 of supply (commercial presence; presence of natural persons) in the form of general authorization procedures for acquisition, and a reservation concerning the extension of beneficial treatment of branches and agencies of companies established within the European Economic Area. There are general exemptions regarding the extension of subsidies to foreign services or service providers. Restrictions also apply to the presence of natural persons.

²⁸ WT/ACC/CHN/49 paras. 251–305, including commitments undertaken in paras. 252, 256, 259, 263, 265, 270, 275, 284, 286, 288, 291, 292, 296, 299, 302, and 304–305.

²⁹ WT/TPR/S/230/Rev.1 at 61–68.

According to the *Chinese* Schedule, mode 3 of supply is subject to some general market access restrictions, involving in particular establishment of equity joint ventures, branches and representative offices, as well as the ownership and rental of land. Mode 4 of supply (presence of natural persons) is in general restricted ('unbound'), except for some categories of managers, executives, specialists and services salespersons. All existing subsidies to domestic services suppliers in the sectors of audio-visual, aviation and medical services are unbound with regard to national treatment and mode 3 of supply.

Specific commitments

Norway has undertaken extensive commitments for modes 1–3 of supply in most sectors. The main exception, in addition to the horizontal reservations mentioned above, concerns restrictions on mode 4 of supply, where *Norway* has noted that this mode remains restricted/unbound for almost all sectors. There are some sectors of environmental relevance where *Norway* has not undertaken commitments in its schedule.³⁰ These include the following:

- 1) Research and development services on natural sciences as well as interdisciplinary research and development services
- 2) Real-estate services involving own or leased property
- 3) Services incidental to mining
- 4) Services incidental to energy distribution
- 5) Postal services
- 6) Health-related and social services
- 7) Maritime transport services
- 8) Internal waterways transport
- 9) Pipeline transport

In addition, some restrictions apply to environmental services, including the horizontal restriction that commitments in this sector 'do not include public service functions whether owned and operated or contracted out by local, regional or central government'. Moreover, mode 1 of supply (cross-border supply) remains unbound for both market access and national treatment within all sub-sectors of environmental services. Finally, there are specific reservations concerning market access for mode 3 of supply (commercial presence) for refuse disposal services and cleaning services of exhaust gases regarding the existence of monopoly situations. *Norway* has significant potential for undertaking further commitments in the transport sector.

China has in general undertaken fewer commitments than *Norway* in most sectors. *China* has extensive reservations concerning mode 3 of supply (commercial presence), requirements concerning joint ventures in particular. As noted in the Feasibility Study (2008: 51): 'By the end of

³⁰ When a country undertakes commitments within a sector, its schedule will state 'none' for the sector in question. In addition, the country may include a reservation, for example in the form of 'none, except for ...'. Where a country does not undertake commitments, its schedule will state 'unbound'. If the country nevertheless wants to undertake limited commitments in this sector, it may note 'unbound, except for ...'.

2006, China has opened more than 100 services sectors, accounting for 62.5% of the WTO's Service Sectoral Classification List (W/120). Considering China's status as a developing economy, the services market of China is quite liberalised.' As indicated by this statement, many of these reservations have been phased out over time, and we may thus assume that they have been eliminated. In the 2010 Trade Policy Review (TPR) of China, the WTO Secretariat makes the following assessment of China's policy since the 2006 TPR:

The Government has placed more emphasis on developing services by way of further liberalization of sectors, including financial services, telecommunications, and tourism. While the presence of SOEs is considerable in key services sectors, such as banking, telecommunications, and civil aviation, and there are still significant restrictions on foreign investment and private-sector activities, China has adopted some measures to further liberalize services, particularly financial services, telecommunications, and tourism. China's commitments under the General Agreement on Trade in Services have not changed since its previous Review; the authorities consider that China had already implemented some of its GATS commitments ahead of the dates envisaged, and recent reforms are part of an ongoing liberalization process since its accession to the WTO.³¹

The 2010 TPR proceeds to assess services sectors. Of particular interest to this report is the assessment of air transport and maritime transport, both of which indicate a high level of liberalization and stability in the regulatory framework.³² A reform to open up the tourism sector was undertaken in 2009.³³ The TPR contains no assessments of other services sectors pertinent to this report.

In some environmentally relevant sectors, China has not undertaken commitments in its schedule. These include the following:

- 1) Veterinary services
- 2) Research and development services (all)
- 3) Market research and public opinion polling services
- 4) Services related to management consulting
- 5) Services incidental to mining
- 6) Advisory and consulting services related to manufacturing
- 7) Services incidental to energy distribution
- 8) Investigation and security activities
- 9) Building-cleaning services
- 10) Health-related and social services
- 11) Pipeline transport

In addition, there are some restrictions of particular interest in an environmental context. These include the following:

³¹ WT/TPR/S/230/Rev.1 at 79, para. 46.

³² Ibid. at 91–96.

³³ Ibid. at 97–98.

- 1) Architectural services, engineering services, integrated engineering services, urban planning services: Mode 1 (cross-border supply) – cooperation with Chinese professional organizations is required (except scheme design).
- 2) Related scientific and technical consulting services – focusing at on- and offshore petroleum exploitation: Mode 3 (commercial presence) – Only in the form of petroleum exploitation in cooperation with Chinese partners.
- 3) Construction and related services – same restrictions apply to the whole sector: Mode 3 (commercial presence): Limited to projects with specified rates of foreign funding.
- 4) Distribution services: Mode 1 (cross-border supply): unbound for several commission agent services, wholesale trade services and retailing services.
- 5) Environmental services – same restrictions apply to the whole sector: Mode 1 (cross-border supply, market access): unbound except for environmental consultation services. Mode 3 (commercial presence): Foreign service suppliers engaged in environmental services are permitted to provide services only in the form of joint ventures, with foreign majority ownership permitted.
- 6) International maritime transport services – except cabotage: Mode 3 (commercial presence): Chinese flag requires joint venture not exceeding 49% foreign investment; the chairman of the board of directors and the general manager of the joint venture shall be appointed by the Chinese side. Other forms of commercial presence for the supply of such services are unbound. Auxiliary services require joint ventures, with foreign majority ownership allowed in most cases. Norway and China have signed a bilateral agreement on marine transport, see below.
- 7) Internal waterways transport services – limited to freight transport: Mode 1 (cross-border supply): Limited to international shipping in ports open to foreign vessels. Mode 3 (commercial presence): unbound.
- 8) Air transport services – limited to repair and maintenance services and computer reservation systems: Restrictions apply to mode 1 and mode 3 of supply.

Bilateral cooperation

A bilateral Agreement on Maritime Transport between Norway and China (4 December 2003, Shanghai). Article 5 provides for national treatment regarding access to ports and other facilities, but is limited to ports that are open for the entry of foreign vessels. Article 8 offers rights of non-discrimination regarding multi-modal transport services. Article 9 extends the right to commercial presence and article 10 extends rights related to key personnel beyond what follows from the GATS Schedules. Articles 14–20 contain rules concerning personnel on board ships, including their rights of entry and conditions for employment.

Norway and China have bilateral cooperation of importance to various services sectors, including environmental services. Here we may mention the following:

- MoU on Cooperation in the Field of Water Resources between the Ministry of Water Resources of China and the Ministry of Petroleum and Energy of Norway, signed 10 June 2010
- MoU on Cooperation in the Petroleum Sector between the Ministry of Petroleum and Energy of Norway and the National Energy Administration of China, signed 12 January 2009
- MoU on Environmental Cooperation between the Ministry of the Environment of the Kingdom of Norway and the Ministry of Environmental Protection of China, signed 30 June 2008
- MoU on Enhancing Cooperation in Energy Conservation and Renewable Energy between the Ministry of Petroleum and Energy of Norway and the National Development and Reform Commission of China, signed 27 September 2006

These bilateral agreements do not focus specifically on trade in services, but they provide a framework within which trade in services is likely to be facilitated.

Conclusions

Our baseline scenario for trade in services assumes that the horizontal and specific commitments will remain the same for Norway and China, and that current trends of unilateral liberalization of services in both countries will continue at a moderate pace. Such unilateral liberalization does involve some uncertainty, as political and administrative decisions may reverse the level of liberalization. This baseline scenario assumes that political factors are likely to increase the level of uncertainty, at least in the short term, and that technical cooperation within the current cooperative framework will help to reduce this uncertainty – especially for sectors of relevance to environmental services, and at least in the long term. The Maritime Transport Agreement has secured a high level of liberalization for the maritime transport sector.

3.4 Baseline scenario for investment

The Agreement Between the Government of the People's Republic of China and the Government of the Kingdom of Norway on the Mutual Protection of Investment (hereafter the BIT – bilateral investment treaty) was signed on 21 November 1984 and remains in force. 'Investment' is broadly defined in the BIT, and includes 'concessions to search for and exploit natural resources' (art. 1). Each party undertakes to admit investment from the other party in accordance with its laws and regulations, while offering the investors fair and equitable treatment and protection (art. 3). Also relevant for the right of establishment is Article 5.3 of the Long Term Trade Agreement between Norway and China: 'The Contracting Parties shall, in accordance with laws and regulations in their respective countries, permit organizations, enterprises and firms of the other country engaged in foreign trade between the two countries to establish permanent representations, offices or joint offices by two or more firms in respective countries.' As noted in the Feasibility Study (2008: 92): 'China and Norway have already carried out effective cooperation on trade and investment promotion under the framework of the Sino-Norwegian Mixed Commission for Economy and Trade,

established in 1980. A sub-committee to the commission, for promoting bilateral investments, was formed in September 2006.’

The BIT contains a general MFN obligation which does not apply to free trade areas, taxation or frontier trade (art. 4). Expropriation or similar measures shall be undertaken only for public purposes, in accordance with legal procedures, in a non-discriminatory manner, and pursuant to compensation without undue delay (art. 5). The right of transfer is protected with the reservation ‘in accordance with its laws and regulations’ (art. 6). There is mandatory dispute settlement between the state parties after a 6-month consultation period (art. 8). In cases of disagreement regarding the amount of compensation pursuant to an act of expropriation, the private party may choose to bring the case before the domestic courts of the party in question, or before an international arbitral tribunal (Protocol para. 2). There are no other rights of investor–state dispute settlement under the BIT, but the MFN obligation can possibly extend the right to investor–state dispute rights in accordance with commitments of the parties under other BITs (Norway has accepted mandatory investor–state dispute settlement in several BITs, including its BIT with Hungary, see art. IX).

The 2010 TPR of China concludes that the Chinese regulatory regime regarding investment had ‘remained largely unchanged’ from 2006 to 2010. Minor adjustments have been made to the tax regime and to lists of encouraged investments, in particular in western regions of China.³⁴

Here we should note China’s use of ‘Special Economic Zones’ (SEZ) in order to promote development through investment. Five such zones were established during the 1980s, primarily to attract foreign direct investment (FDI), expand China’s exports, and accelerate the infusion of new technology. Measures designed to attract FDI included streamlined administrative control, relative independence for local planning authorities, direct access by foreign entrepreneurs to provincial- and central-level planning units, tax breaks, reduced duties on imported equipment and production materials, free or low-rent business accommodation, flexibility in hiring and firing workers, depreciation allowances, negotiated limited access to the domestic Chinese market for goods produced within the SEZ, and residence and work permits and income tax exemption for foreigners working within the SEZ (Yeung, Lee and Kee 2009: 230–1). As policy reform elsewhere in China has been modelled on experiences from the SEZs, policy differences between these zones and the rest of China are now insignificant. According to a Chinese reply during the 2010 TPR of China, the SEZ ‘is now more a geographic concept. ... Nowadays, access requirements concerning foreign and/or domestic investment are generally applied nationwide and there are no other requirements for enterprises to fulfill if they want to be established in SEZs.’³⁵

³⁴ WT/TPR/S/230/Rev.1 at 21–22.

³⁵ WT/TPR/M/230/Add.1 at 4–5.

In conclusion, our baseline scenario assumes that *investment flows* will depend partly on unilateral decisions to open up sectors, many of which will fall under services sectors (market access and national treatment in regard to mode 3 of supply – commercial presence), and partly on bilateral cooperation between Norway and China. There seems to be a considerable potential for greater investment between Norway and China, both currently capital-exporting countries. The baseline scenario assumes that *investment protection* will remain at the current level, which is fairly low when compared to other BITs. We do not know whether the level of investment protection has been of significance to investment decisions so far, but other studies have indicated that the level of investment protection is generally of minor importance for investment decisions.

4. Screening

In order to provide scenarios that are focused, we conducted a screening on the basis of the Methodology Report (Fauchald and Vennemo 2011: 48–57) before developing the scenarios. Final conclusions regarding screening and scoping, taking into account the scenarios, are provided in chapter 7 below.

4.1 Trade in goods

Tariffs: Import to Norway of non-agricultural products, except for clothing, is not subject to tariffs of any significance, and can thus be excluded from further discussion here. By contrast, import to Norway of agricultural products is generally subject to fairly high tariffs. Our preliminary screening excludes dairy products and live animals, on the assumption that negotiation results will not lead to any changes in current relevant measures that would affect trade between China and Norway. No other agricultural products have been excluded

Norwegian export to China is subject to significant tariffs in all product categories. Our preliminary screening excludes agricultural products (other than fish and fish products), on the assumption that negotiation results will not lead to any changes in current relevant measures that would affect trade between China and Norway. Other products than those mentioned remain on the table.

Non-tariff barriers (TBT): Norway has not entered into substantive TBT and SPS commitments in relevant EFTA treaties (see EFTA–Singapore FTA articles 12 and 13, EFTA–Korea FTA articles 2.7 and 2.8, and EFTA–Chile FTA articles 16 and 17). The China–New Zealand FTA contains separate chapters with detailed provisions on sanitary and phytosanitary measures (chapter 7, articles 73–88) and technical barriers to trade (chapter 8, articles 89–102). Against this background, it seems likely that the Sino–Norwegian FTA will contain TBT and SPS rules, but such rules will probably not go very far beyond existing commitments in the WTO. In light of the above and information gathered during our consultations with stakeholders, we concluded that formal agreements between Norway and China regarding mutual recognition of conformity assessments should be excluded from further assessment here. Norway and China can be expected to negotiate bilateral mutual recognition agreements only if the EU has negotiated or is negotiating parallel agreements with China.

One issue raised during the public hearing of the Methodology Report was the import, through China, of *timber and timber products*. It was asked whether the FTA may affect Norwegian policies to support other countries' efforts to prevent illegal logging. We observe that Norwegian concerns in this respect relate not to Chinese timber, but to timber imported to or in transit through China. Norway does not apply tariffs on timber or timber products. We may thus conclude that Norwegian measures in respect of such timber would be non-tariff measures and

would be based on the origin of timber imported through China, or on the origin of timber used for timber-based products imported from China.

Government procurement: The issue of government procurement was not addressed in any detail in the Feasibility Study. None of the Chinese FTAs examined contains rules on government procurement that go beyond indicating future cooperation in this respect (FTAs with Peru art. 151, and Chile art. 105). Against this background, this report will not consider government procurement.

4.2 Trade in services

General issues: In the Methodology Report (Fauchald and Vennemo 2011) we made two assumptions concerning future commitments regarding trade in services: 1) that cross-border supply of services (mode 1) will remain ‘unbound’ where the Norwegian and Chinese schedules of specific commitments state ‘Unbound due to lack of technical feasibility’;³⁶ and 2) that supply through the presence of natural persons (mode 4) will remain ‘Unbound except as indicated in the horizontal section’ if so noted in the schedules. Further research has shown that technological developments have brought significant improvement in opportunities for cross-border supply of services (mode 1) in many sectors,³⁷ and that China and Norway are likely to undertake commitment for mode 1 of services. Moreover, in line with input from the Chinese research team, we found it necessary to assess the consequences from liberalization of presence of natural persons (mode 4). These changes will be reflected in the scenarios.

The Norwegian schedule: Our screening on the basis of commitments undertaken in Norway’s schedule has allowed us to exclude several categories of services (Fauchald and Vennemo 2011: 12–14 and 48–55). In addition, we have excluded several service sectors, assuming that (a) negotiation results will not lead to any changes in current relevant measures that would affect trade between China and Norway, or (b) the activities in question or associated activities involve no significant environmental effects, or (c) a specific assessment of the negotiation result concludes that it is unlikely to lead to major changes of the incentives of relevant actors. Against this background, we conclude that the following services sectors remain on the table:

- *Environmental services:* points of interest are mode 1 of supply (cross-border supply); some reservations concerning government monopoly; and the horizontal reservation: ‘These commitments do not include public service functions whether owned and operated or contracted out by local, regional or central government’
- *Business services* related to mining and energy distribution
- *Research and development services* related to natural sciences, as well as interdisciplinary research and development services

³⁶ WTO docs. GATS/SC/66 and GATS/SC/135, respectively.

³⁷ See, inter alia, WTO doc. S/C/W/320 para. 74.

Transport services include rail transport, road transport, air transport and maritime transport, all of which may be relevant to the FTA. Transport between Norway and China, in practice air transport and maritime transport, will be addressed separately below. Norway has undertaken commitments in GATS concerning rail transport with regard to pushing and towing, maintenance and repair, as well as support services. No commitments have been undertaken regarding passenger and freight transport. With one minor exception (cross-border supply of maintenance and repair services), Norway's current FTAs do not include any additional commitments. Hence, we assume that an FTA with China will not affect rail transport significantly. The same applies to road transport services, where relevant existing FTAs include only one minor concession: no requirement of national registration on vehicles used for passenger or freight transport.

Norway could undertake commitments regarding *health services*, and such commitments could be relevant to the extent that they address environment-related health matters. However, we find that such commitments are unlikely to be undertaken; and that, even if such commitments are undertaken, the environmental effects of such commitments can be expected to be insignificant.

The Chinese schedule: Our screening on the basis of commitments undertaken in China's schedule has allowed us to exclude some services. In addition, we have excluded several of the services sectors on the basis of the assumptions mentioned immediately above. Against this background, we conclude that the following services sectors remain on the table:

- *Professional services:* points of potential interest are architectural services, engineering services, integrated engineering services, urban planning services and veterinary services
- *Research and development services*
- *Other business services:* points of interest may be management consulting and services incidental to mining and energy distribution
- *Environmental services:* of interest here are market access mode 1 (cross-border) – 'Unbound except for environmental consultation services', and mode 3 (commercial presence) – 'Foreign services suppliers engaged in environmental services are permitted to provide services only in the form of joint ventures, with foreign majority ownership permitted'

Transport between Norway and China: The air transport services pertinent to this study are addressed in the Agreement on Civil Air Transport between the Government of the People's Republic of China and the Government of the Kingdom of Norway, signed in 1973 and subsequently revised.³⁸ In accordance with this Agreement, there are few restrictions on air transport between China and Norway. Issues con-

³⁸ The Agreement has not formally entered into force, but is used as a basis for Chinese and Norwegian regulation of air traffic between the countries.

cerning air transport are, in accordance with current practice, to be resolved in bilateral agreements outside the scope of the FTA, so a Sino-Norwegian FTA will not directly affect the conditions for air transport between the two countries. Indirect effects (increased transport as a consequence of increased trade) will be considered where relevant.

Maritime transport services are currently not bound in the Norwegian GATS Schedule. Such services are to some extent bound in China's GATS Schedule. Several of Norway's FTAs contain commitments regarding maritime services. The effect of including such provisions in an FTA with China must be assessed in light of the existing bilateral agreement between Norway and China. It is our assessment that the commitments undertaken in Norway's FTAs do not provide for market access, national treatment or other commitments that go significantly beyond the commitments undertaken in the bilateral agreement between Norway and China. Against this background, we assume that an FTA between the two countries will not directly affect marine transport to any great extent. Indirect effects will be considered where relevant.

4.3 Investment

Establishment: Establishment (the right to invest across borders) is in general not liberalized through bilateral FTAs, beyond specific commitments undertaken in services sectors (modes 3 and 4 of supply). Relevant provisions in bilateral investment treaties and chapters of FTAs do in general contain soft obligations to cooperate in order to facilitate investment flows between the countries. Against this background, we assume that the investment chapter of the FTA will not contain provisions that will significantly change the right of establishment in Norway or China beyond what follows from article 3 of the current BIT between China and Norway: 'Each contracting party shall encourage nationals or companies of the other contracting party to invest in its territory, and shall admit such investments in accordance with its laws and regulations.'

Investment protection: In light of commitments undertaken in the current BIT between China and Norway, our screening has excluded three issues: expropriation, transfers and mandatory state-state dispute settlement (Fauchald and Vennemo 2011: 12–14 and 55–56). Against this background, we have identified the following issues as remaining on the table:

- Non-discrimination provisions, including most-favoured-nation and national treatment
- 'Umbrella clause' (i.e. a clause that protects contractual rights)
- Performance requirements
- Fair and equitable treatment, depending on whether it will be subject to investor-state dispute settlement
- Mandatory investor-state dispute settlement
- Provisions to promote the environmental performance of investment or investors

5. Free trade scenario

Our free trade scenario focuses on those topics that remain after the above screening. Environmental measures taken to mitigate adverse environmental effects or to enhance beneficial environmental effects will be addressed in the green trade scenario below. For Norway, the free trade scenario is based on statements in the 2008 Feasibility Study and commitments undertaken in EFTA Free Trade Agreements with Singapore (2002), Chile (2003), Korea (2005) and Peru (2010).³⁹ These FTAs have been selected partly due to their geographical proximity to China and partly due to their comprehensiveness and recent conclusion. For China, the free trade scenario is based on statements in the Feasibility Study, as well as commitments undertaken in China's FTAs with Chile (2005), New Zealand (2008), Peru (2009) and Costa Rica (2010).⁴⁰ These FTAs have been selected mainly because of the characteristics of the countries that are parties, and because they have been concluded recently.

In addition to these FTAs, which have been considered systematically, we have consulted several other FTAs on an *ad hoc* basis, including the FTAs between EFTA and Hong Kong (2011) and between China and ASEAN (2004) and China and Singapore (2008) in particular. We have also consulted several bilateral investment treaties.

5.1 Trade in goods

Tariffs

We distinguish between Norwegian and Chinese import tariffs.

Norwegian import tariffs: We assume that a Sino-Norwegian FTA will eliminate all tariffs on clothing. This seems to be an obvious bargaining chip on the Norwegian side; see also the Feasibility Study (2008: 48). Further, some agricultural goods will be subject to significant tariff reductions in this scenario. The candidates for tariff reductions are items of interest to China but of low significance to Norwegian farmers. Chinese interest is stimulated if transport costs are low and/or the Chinese cost advantage is high. This will probably exclude dairy product and live animals. We also note that the significance for Norwegian farmers is probably low if Norway hardly produces the goods in question. Rice is an example that fits both categories; other examples could be frozen meat, oils and grains. Box 5.1 shows that there may be environmental issues related to trade in agricultural goods, unless there are proper regulations for health and sanitation issues.

³⁹ EFTA Free Trade Agreements can be accessed here: <http://www.efta.int/free-trade/free-trade-agreements.aspx>.

⁴⁰ China's Free Trade Agreements can be accessed here: <http://fta.mofcom.gov.cn/english/index.shtml>.

Box 5.1 **Possible environmental issues of rice**
(15 February 2011)

China rice laced with heavy metals: report

(AFP) – 4 days ago

BEIJING — Up to 10 percent of rice grown in China is contaminated with harmful heavy metals but little has been done to highlight the possible public health risks, a report said.

This week's edition of the *New Century* magazine cited studies showing that large amounts of Chinese rice have been tainted with heavy metals like cadmium due to years of pollution stemming from the nation's rapid economic growth.

"During China's fast-paced industrialisation, activities such as mining have sprung up everywhere, releasing into the environment chemical elements like cadmium, arsenic, mercury and other harmful heavy metals," the report said.

"These harmful heavy metals have spread through the air and water, polluting a rather large area of China's land... a complete chain of food contamination has existed for years."

The report cited academic studies since 2007 focusing on several rural villages in southern China near mines and industrial areas where health problems such as bone diseases have emerged, mostly among the elderly.

Pan Genxing, a scientist who carried out some of the key research cited in the report, said the percentage of tainted rice was even higher in some specific localities.

"In areas with acidic soil that are known to be badly polluted, we have found that up to 60 percent of the rice samples gathered there surpass cadmium standards," Pan, a scientist with Nanjing Agricultural University, told AFP.

However he added that while cadmium levels were sometimes five times higher than government standards, the problem represented a "potential health risk" rather than dangerous "acute toxicity".

Most at risk from high cadmium levels were subsistence farmers in polluted areas who mainly live on the rice they grow, Pan said.

Chinese import tariffs: The experience from other bilateral FTAs is that China is willing to phase out its import tariff on various categories of seafood. Table 5.1 shows the agreed tariff schedules between China and Chile. The initial tariffs are similar to those currently facing Norwegian sea products, around 10–12%. The China–Chile FTA stipulates that tariffs are to be eliminated gradually over a 5–10 year period. Similar concessions, although generally somewhat more far-reaching, were offered by China in its FTA with Peru (Table 5.2). On this basis, our free trade scenario assumes that Chinese import tariffs facing Norwegian sea products will be eliminated, immediately or gradually.

There is also reason to argue that Chinese tariffs will be lifted on some or all industrial products of interest to Norway.

Table 5.1 FTA between China and Chile as regards chilled and frozen seafood

Category	Tariff rate, %	Phasing-out of tariffs
Fresh or chilled trout	12	'Year 10' (10% by signature, thereafter 10% annually)
Fresh or chilled Atlantic salmon	10	'Year 10' (as above)
Fresh or chilled halibut	12	'Year 5' (20% by signature, thereafter 20% annually)
Fresh or chilled herring	12	'Year 5' (as above)
Fresh or chilled cod	12	'Year 5' (as above)
Fresh or chilled haddock	12	'Year 5' (as above)
Fresh or chilled mackerel	12	'Year 5' (as above)
Fresh or chilled fish, nes	12	'Year 10' (10% by signature, thereafter 10% annually)
Fresh or chilled fish liver & roe	12	'Year 5' (20% by signature, thereafter 20% annually)
Frozen trout	12	'Year 10' (10% by signature, thereafter 10% annually)
Frozen Atlantic salmon	10	'Year 10' (as above)
Other frozen halibut	10	'Year 2' (50% by signature, 50% after one year)
Frozen herring	10	'Year 2' (as above)
Frozen cod	10	'Year 5' (20% by signature, thereafter 20% annually)
Frozen haddock	12	'Year 5' (as above)
Frozen mackerel	10	'Year 10' (10% by signature, thereafter 10% annually)
Frozen fish, nes	10	'Year 10' (as above)
Frozen fish liver & roe	10	'Year 10' (as above)
Fresh or chilled fish fillets and other fish meat	12	'Year 10' (as above)
Atlantic salmon, smoked	14	'Year 5' (20% by signature, thereafter 20% annually)
Smoked herring	16	'Year 5' (as above)
Smoked fish (excl. salmon & herring)	14	'Year 10' (10% by signature, thereafter 10% annually)
Frozen shelled shrimp	8	'Year 1' (100% by signature)
Frozen shrimp in shell	5	'Year 5' (20% by signature, thereafter 20% annually)
Other frozen crabs, nes	10	'Year 10' (10% by signature, thereafter 10% annually)
Mussels, frozen, dried, salted or in brine	14	'Year 10' (as above)

Source: FTA between Chile and China, Annex 1, Section 2, including the Schedule of China.

Table 5.2 FTA between China and Peru as regards chilled and frozen seafood

Obligation undertaken	Product categories (tariff rates as above)
Duties are exempt from tariff elimination	- Frozen fish liver & roe
Duties shall be removed in 10 equal annual stages beginning on the date this Agreement enters into force, and such goods shall be duty-free, effective January 1st of year 10 (parallel to 'Year 10' above)	- Fresh or chilled trout - Fresh or chilled Atlantic salmon - Frozen trout - Frozen Atlantic salmon - Other fish fillets and fish meat, fresh or chilled - Smoked fish (excl. salmon & herring) - Other frozen crabs, nes - Mussels, frozen, dried, salted or in brine
Duties shall be removed in <u>eight</u> equal annual stages beginning on the date this Agreement enters into force, and such goods shall be duty-free, effective January 1st of year eight	- Frozen mackerel - Frozen fish, nes - Other frozen fillets
Duties shall be removed in <u>five</u> equal annual stages beginning on the date this Agreement enters into force, and such goods shall be duty-free, effective January 1st of year five (parallel to 'Year 5' above)	- Fresh or chilled halibut - Fresh or chilled herring - Fresh or chilled cod - Fresh or chilled haddock - Fresh or chilled mackerel - Fresh or chilled fish, nes - Fresh or chilled fish liver & roe - Frozen haddock - Atlantic salmon smoked - Smoked herring
Duties shall be eliminated <u>entirely</u> and such goods shall be duty-free on the date this Agreement enters into force (parallel to 'Year 1' above)	- Other frozen halibut - Frozen herring - Frozen cod - Flours, meals & pellets of fish, fit for human consumption - Frozen shelled shrimp - Frozen shrimp in shell

Source: FTA between Peru and China, Annex 2, including the Schedule of China.

Non-tariff barriers

1) *Trade facilitation*: According to the Feasibility Study (2008: 77) 'China and Norway Customs could strengthen their existing relationship to further facilitate bilateral trade. Furthermore, the inclusion of provisions on customs procedures and trade facilitation in a future FTA would be beneficial to Sino-Norwegian goods trade.' Among the Norwegian FTAs examined, the EFTA-Peru FTA is most advanced as regards modalities for trade facilitation. Article 2.4 and Annex VII set out general obligations to simply procedures for trade in goods and related services; there are also more detailed provisions covering the use of international conventions, recommendations and standards; simplification of international trade procedures; risk management in the application of control by customs and other border agencies; advance rulings; and cooperation on trade facilitation within the framework of the Joint Committee and in relevant multilateral forums governing trade facilitation. Article 2.5 establishes a Sub-Committee on Trade in Goods, Rules of Origin and Customs Matters. In addition, article 2.10 prohibits

requirements of consular transactions, including related fees and charges, in connection with the import of goods from the other party.

Among the Chinese FTAs examined, the FTAs with New Zealand, Chile and Costa Rica contain, respectively, chapters on customs procedures and cooperation (chapter V), on customs procedures and trade facilitation (chapter 4), and on customs procedures (chapter 5). Of particular relevance are references in these chapters to the 1973 International Convention on the Simplification and Harmonization of Customs Procedures, detailed provisions on advance rulings, and provisions on release of goods within 48 hours. Both China and Norway are parties to this convention.

Against this background, and in light of the limitations facing Norway as party to the EEA Agreement, we have chosen to base our free trade scenario on trade facilitation in line with the arrangements provided for in the EFTA–Peru FTA.

2) *Technical barriers to trade*: As noted in the Feasibility Study (2008: 85), ‘A possible FTA between China and Norway would develop bilateral cooperation through identifying principles, disciplines and procedures for dealing with technical requirements, standards and conformity assessment that affect bilateral trade. ... In the context of a possible FTA, China and Norway will have the opportunity: ... to identify and eliminate existing unjustified technical barriers to promote bilateral trade; ... to strengthen cooperation on mutual recognition of conformity assessment; and to carry out bilateral cooperation in the field of technical regulations, standards and conformity assessment.’ The Norwegian FTAs examined are limited to issues of conformity assessment. The Korean and Peruvian FTAs, articles 2.8 and 2.14, respectively, contain relevant provisions on mutual recognition of conformity assessment bodies and results, but leave specific undertakings for future negotiations.

The Chinese FTAs go further than the Norwegian FTAs in setting out rules on and promoting future cooperation regarding technical barriers to trade (see chapter 8 of the FTA with New Zealand, chapter VIII of the FTA with Chile, and chapter 7 of the FTAs with Peru and Costa Rica). Of China’s FTAs, the one with New Zealand is most advanced in this respect. Its chapter 8 includes elaborate provisions concerning regulatory cooperation (focusing, *inter alia*, on health, safety, and the environment), conformity assessment procedures, transparency, technical assistance, and a detailed provision establishing a TBT committee.

Against this background, and in light of the limitations Norway faces as party to the EEA Agreement, we have chosen to base our free trade scenario on TBT rules in line with those included in the EFTA–Peru and EFTA–Korea FTAs.

3) *Sanitary and phytosanitary measures*: According to the Feasibility Study (2008: 82), ‘a possible free trade agreement China and Norway would have the opportunity to strengthen cooperation on SPS issues and establish common understanding to related principles and implementation

mechanisms.’ Among the opportunities listed are ‘enhanced consultation and cooperation’, ‘improve SPS operations and associated regulatory practices’, ‘agreeing on the principles to be applied by both sides with respect to inspection, testing and certification procedures’, and ‘without prejudice to the EEA Agreement, agreeing on the principles of harmonization, equivalence, transparency and regionalization’. Of the Norwegian FTAs examined, the EFTA–Peru FTA contains the most advanced SPS provision. Its article 2.13 includes an obligation not to restrict market access unless there is scientific justification (para. 3), an obligation to develop bilateral agreements when necessary (para. 5), and the establishment of a forum for SPS experts (para. 7).

The Chinese FTAs go further than the Norwegian FTAs in setting out rules on and promoting future cooperation regarding SPS measures (see chapter 7 of the FTA with New Zealand, chapter VII of the FTA with Chile, and chapter 6 of the FTAs with Peru and Costa Rica). Of China’s FTAs, the one with New Zealand contains the most advanced and extensive chapter on SPS measures, with elaborate provisions concerning implementing agreements, risk analysis, adaptation to regional conditions, equivalence, verification, certification, import checks, cooperation, notification, and exchange of information.

Against this background, and in light of the limitations Norway faces as party to the EEA Agreement, we have chosen to base our free trade scenario on SPS rules in line with those included in the EFTA–Peru FTA.

Export controls

The 2008 Feasibility Study does not consider export controls. The Chinese FTAs contain few rules regarding export measures. Rules on export restrictions incorporate art. XI of GATT (art. 11 of FTAs with Costa Rica, and Peru), but some of these agreements provide an opening for flexibilities through lists of measures in annexes.⁴¹ China has not made use of such flexibilities to any great extent.⁴² Art. 11 of its FTA with New Zealand contains a potentially far-reaching obligation to limit the use of export controls:

1. A Party shall not adopt or maintain any non-tariff measures on the ... exportation of any good destined for the territory of the other Party except in accordance with its WTO rights and obligations or in accordance with other provisions of this Agreement.
2. Each Party shall ensure its non-tariff measures permitted in paragraph 1 are not prepared, adopted or applied with a view to,

⁴¹ See in particular Annex 1 to the FTA with Costa Rica, wherein Costa Rica has listed a range of products for which export restrictions may be continued.

⁴² The most extensive use was in the FTA with Costa Rica, wherein China listed ‘(a) measures related to the protection of the environment and natural resources pursuant to applicable domestic law and the provisions established in Article 159 (General Exceptions) of this Agreement; and (b) actions authorized by the Dispute Settlement Body of the WTO.’

or with the effect of, creating unnecessary obstacles to trade between the Parties.

Rules regarding administrative fees and formalities incorporate relevant WTO rules, in particular arts. III and VIII of GATT (FTAs with Chile art. 9, Costa Rica art. 13, New Zealand art. 9, and Peru art. 13). In addition, the Chinese FTAs contain generally detailed rules for determining the country of origin.

Norway's FTAs contain provisions regarding the abolition of export restrictions, provisions more far-reaching than those of China. For example, according to art. 9.2 of the Norway–Chile FTA, 'The Parties shall, on the date of entry into force of this Agreement, abolish all customs duties on exports of goods of a Party in trade between the Parties.' Similar provisions are included in the FTAs with Korea (art. 2.3), Singapore (art. 8), and Peru (art. 2.8). Moreover, art. 15.1 of the FTA with Chile states that 'all import or export prohibitions or restrictions on trade in goods of a Party between the EFTA States and Chile, other than customs duties and taxes, whether made effective through quotas, import or export licenses or other measures, shall be eliminated, except as provided for in Annex VII.' The annex does not list exemptions of interest here. Article 15.2 states that: 'No new measures as referred to in paragraph 1 shall be introduced.' Similar provisions are included in Norway's FTAs with Korea (art. 2.5) and Singapore (art. 9). The FTA with Peru offers greater flexibility in this respect, as it is limited to incorporating GATT art. XI and include some additional flexibilities (art. 2.9 and Annex IX).

All the FTAs examined contain general exceptions that are parallel to those of GATT art. XX. Of particular interest in relation to export controls that are justified on the basis of environmental concerns are GATT art. XX(b) and (g). In addition, art. XX(i) and (j) are relevant from a broader perspective which includes sustainable development, i.e. social and economic aspects.

Against this background, and given the sensitivities of the export-control issue due to current disputes between China and third countries, we base our free trade scenario on the restrictions on export controls contained in the FTA between China and New Zealand.

Intellectual property rights (IPR)

According to the Feasibility Study (2008: 87) a Norwegian FTA with China could strengthen 'cooperation on the implementation of intellectual property rights, including in relation to legal, administrative and implementation processes' and establish 'cooperative mechanisms to settle problems identified in the intellectual property rights area'.

All the Norwegian FTAs examined contain provisions regarding intellectual property rights. The FTA with Peru differs from the others in containing provisions that will be considered in the green trade scenario below. Of the FTAs, the one with Chile (which is parallel to those of Singapore, see art. 54 and Annex XII, and Korea, see arts. 7.1–7.3 and

Annex XIII) and with Peru contain the most far-reaching provisions as to IPR protection. The FTA with Chile contains obligations regarding a minimum level of protection and non-discrimination (both NT and MFN treatment) in art. 46; obligations to undertake to become parties to several multilateral treaties within specified time limits in Annex XII art. 2; as well as references to the TRIPS Agreement with regard to geographical indications, acquisition and maintenance of IPRs, and enforcement in Annex XII arts. 6–8. Of particular interest here is the following obligation in Annex XII art. 3 to:

ensure in their national laws at least the following: (a) adequate and effective patent protection for inventions in all fields of technology. ...; (b) each Party shall make available an extension of the patent term to compensate the patent owner for unreasonable curtailment of the patent term as a result of the marketing approval or sanitary permit process; and (c) compulsory licensing of patents shall only be granted under the terms of the TRIPS Agreement and the Doha Ministerial Declaration adopted on 14 November 2001 by the World Trade Organization.

In addition, Annex XII art. 4 contains rules on extended protection of pharmaceutical and agricultural chemicals in cases where information must be submitted in the process of granting a marketing approval or a sanitary permit to products which utilize new chemical entities. According to the provision, the parties ‘shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use.’ Finally, art. 5 of Annex XII provides for effective protection of industrial designs for a period of at least 15 years.

Norway’s FTA with Peru contains many of the same provisions as the FTA with Chile. One notable difference is art. 6.9 concerning patents, which is parallel to art. 27 of TRIPS. An additional element is, however, the provision according to which ‘a Party that does not provide patent protection for plants, shall undertake reasonable efforts to make such patent protection available consistent with paragraph 1.’ Article 6.11 provides for extensive additional protection of pharmaceutical products and agricultural chemical products relating to approval procedures that require access to ‘undisclosed information’.

Three of the Chinese FTAs address intellectual property rights in detail. Some of the issues covered will be further explored in the green trade scenario below. As regards the free trade scenario, the provisions of particular interest are the following: a provision incorporating the TRIPS Agreement into the FTA with New Zealand (art. 161.3); provisions on border measures in the FTAs with Costa Rica (art. 114) and Peru (art. 147); and provisions on geographical indications in the FTAs with Costa Rica (art. 116) and Peru (art. 146). In general, the Chinese FTAs do not contain provisions that extend IPR protection beyond China’s WTO obligations. However, some of the provisions specify the obligations in more detail.

Against this background, we assume that Norway and China are likely to have differing priorities regarding intellectual property rights. However,

among the EFTA countries, Switzerland has promoted strict IPR protection, whereas Norway has in many negotiation processes maintained positions more in line with the interests of developing countries. The free trade scenario will therefore not include all the provisions to be found in EFTA's FTAs. The free trade scenario builds on the obligations of the TRIPS Agreement supplemented by more specific obligations regarding geographical indications and border measures. It also includes non-discrimination obligations (national treatment and most-favoured-nation).

5.2 Trade in services

Norway has made public its offers in the Doha Round.⁴³ We assume that, as a minimum, such commitments will be included in a Norwegian FTA with China. In addition, we base our scenario on commitments made by Norway through the EFTA FTAs with Singapore, Chile and Korea (as yet there have been no commitments in the FTA with Peru). China has not made public its Doha Round offers, so our scenario will draw on China's commitments in its FTAs with Chile, New Zealand, Costa Rica and Peru.

Horizontal commitments

Norwegian offers in the Doha Round include the opening up for purchases of property/real estate in Norway. Importantly, Norway has maintained reservations regarding access to subsidies. We base the free trade scenario on the assumption that Norway will undertake horizontal commitments vis-à-vis China in accordance with the Norwegian offer during the Doha negotiations.

The Chinese schedule in its FTA with New Zealand includes the same the horizontal commitments as in its WTO schedule (its New Zealand schedule does not cover mode 4 of supply).⁴⁴ Interestingly, China has not included the reservation concerning national treatment of some categories of subsidies for mode 3 in its schedule with Peru.⁴⁵ This indicates that national treatment regarding subsidies for commercial presence may be on the table in the negotiations with Norway. In addition, China's schedule with Peru includes modifications regarding mode 4 of supply. We consider that such Chinese commitments would depend on reciprocity, and that Norway might possibly reciprocate, given its willingness to consider such commitments in the Doha negotiations.⁴⁶

⁴³ WTO doc. TN/S/O/NOR/Rev.1, see <http://www.regjeringen.no/upload/kilde/ud/bro/2006/0015/ddd/pdfv/296029-tjenestevedlegg.pdf>.

⁴⁴ The horizontal commitments in China's schedules with Costa Rica and Chile do not differ significantly from its WTO schedule. The Chinese schedule with Chile contains some apparent errors, and we thus have not fully assessed whether additional horizontal commitments have been undertaken under this FTA.

⁴⁵ The relevant reservation in China's WTO schedule reads as follows: '(3) Unbound for all the existing subsidies to domestic services suppliers in the sectors of audio-visual, aviation and medical services.'

⁴⁶ See Collective Request, Mode 4 – Movement of Natural Persons (8 March 2006) sponsored by, *inter alia*, Norway, available at <http://www.regjeringen.no/upload/kilde/ud/nyh/2006/0078/ddd/pdfv/282784-mode4.pdf>.

Our free trade scenario will therefore include such commitments in both the Chinese and the Norwegian schedules.

Specific commitments – Norway

Services related to *mining*: Norway has undertaken full commitments for modes 1–3 in the FTAs with Chile and Korea, and in the Doha negotiations has offered to do the same. Against this background, we assume in the free trade scenario that full commitments are undertaken for modes 1–3 of supply, i.e. that the Norwegian schedule lists them as ‘none’ for market access as well as national treatment

Services related to *energy production and distribution*: Norway has undertaken full commitments for modes 1–3 in relation to construction, exploration and development of energy resources in its FTA with Chile, and has offered to undertake the same commitment in the Doha negotiations. Further, Norway has undertaken full commitments for modes 1–3 in relation to energy commercialization services, including trading and brokering for energy, energy products, and fuels, in its FTA with Chile, and has offered to undertake the same commitment in the Doha negotiations. However, the latter commitments contain one reservation, as mode 1 remains unbound in relation to commission agent, wholesale trade and retailing services relating to electricity; as well as for intermediation of financial energy derivatives and related auxiliary services. Against this background, we base the free trade scenario on commitments parallel to those undertaken by Norway in its FTA with Chile.

Research and development services: In its FTA with Singapore, Norway has undertaken full commitments for modes 1–3 of research and development services related to the natural sciences, and interdisciplinary research and development services. However, no such commitments have been undertaken in its other FTAs, nor has Norway offered to undertake such commitments in the Doha negotiations. On the one hand, commitments for such services might prove a sensitive issue in relation to China due to possible competition between Norwegian and Chinese researchers. Moreover, China has not undertaken commitments for such services in its FTAs. On the other hand, both countries have interests in further cooperation regarding research and technology transfer, and have several bilateral agreements that facilitate such cooperation, including in the field of the environment. Against this background, our free trade scenario assumes that Norway undertakes commitments parallel to those undertaken in its FTA with Singapore.

Environmental services: The horizontal reservation for environmental services (‘commitments do not include public service functions whether owned and operated or contracted out by local, regional or central government’) is upheld in the Norwegian schedules under the FTAs, and Norway has not offered to eliminate this reservation in the Doha negotiations. In the free trade scenario we thus assume that this reservation remains.

Norway has undertaken full commitments regarding mode 1 of supply for all environmental services in the FTA with Chile; it has also made a similar commitment its FTA with Korea but with a reservation for advisory services. In the Doha negotiations, Norway has offered to undertake commitments regarding mode 1 for advisory services regarding wastewater, waste and remediation and clean-up of soil and water, as well as noise, protection of biodiversity and landscape, and other environmental and ancillary services. Against this background, the free trade scenario assumes that Norway undertakes full commitments regarding mode 1 of supply of all environmental services.

Norway has generally discontinued its reservation concerning mode 3 of supply for refuse disposal services and cleaning services of exhaust gases regarding the existence of monopoly situations in its recent FTAs (Chile, Korea and Hong Kong). In the Doha negotiations, Norway has offered to eliminate this reservation in relation to waste. Against this background, the free trade scenario assumes that Norway eliminates this reservation.

Specific commitments – China

Professional services: China has not undertaken additional commitments in relation to architectural services, engineering services, integrated engineering services or urban planning services in any of the FTAs examined. Our free trade scenario thus assumes that China will not undertake additional commitments in these sectors.

Research and development services: The FTA with Peru is the only Chinese FTA that contains additional commitments for research and development services. These commitments are related to the natural sciences ‘except for R&D services listed in the Catalogue of Prohibited Foreign Investment Industries of the Catalogue for the Guidance of Foreign Investment Industries of China’. China has undertaken full commitments for modes 2 and 3 of supply (incl. allowing wholly foreign-owned enterprises). Given that Norway might be willing to reciprocate (see above), the free trade scenario is based on the same commitment as in China’s FTA with Peru.

Other business services: China does not seem interested in opening up its markets for services related to management consultancy, as it has not undertaken relevant commitments in any FTAs. Indeed, its FTA with New Zealand even seems to include weaker commitments for such services than those undertaken by China in its WTO schedule. Moreover, China has not undertaken commitments regarding energy distribution. Thus, in the free trade scenario we do not assume further commitments for management consultancy services or services incidental to energy distribution.

China has, however, undertaken commitments for services incidental to *mining* in its FTAs with Peru, Chile and Costa Rica, including full commitments regarding modes 2 and 3 of supply. The sole remaining reservation is that mode 3 of supply regarding market access applies only to oil and gas exploitation in cooperation with Chinese partners. Moreover, China’s FTA with Chile includes additional commitments

covering some mining-related services: scientific technical consulting services; field services for iron, copper and manganese; geological, geophysical and other scientific prospecting services; as well as sub-surface surveying services. These are full commitments for modes 1–3 of supply, with the reservation that market access for mode 3 is limited to prospecting and surveying services for iron, copper and manganese in cooperation with Chinese partners. Our free trade scenario is based on commitments parallel to those undertaken by China in its FTA with Chile.

Environmental services: While China has not undertaken commitments that go beyond its WTO commitments in its FTAs with Peru and Costa Rica, it has undertaken some additional commitments in its FTAs with New Zealand and Chile, according to which wholly foreign-owned enterprises will be permitted under mode 3 for all sub-sectors. Unless otherwise stated, our free trade scenario assumes that China's commitments will be in accordance with those undertaken in its WTO schedule, supplemented by those undertaken in its FTAs with New Zealand and Chile.

Domestic regulation

One remaining question is whether Norway and China will negotiate more specific rules regarding certain regulatory issues under the GATS. Here we focus on 'domestic regulation' as defined in article VI of GATS. Norway has indicated some interest in further developing the disciplines related to domestic regulation under GATS. However, we are not aware of any specific Norwegian proposal in this respect. We note that some Norwegian FTAs contain rules that in some respects go beyond article VI of GATS. The FTAs with Hong Kong (art. 3.7) and Chile (art. 28) extends some of the rules to sectors in which commitments have not been undertaken. None of the recent FTAs contain rules that go beyond article VI of GATS to an extent that is relevant for the purpose of this report. China's FTA with New Zealand contains rules that might be of some interest here: see articles 111.3 (minor procedural issues when processing applications for permits to supply services), and 113 (cooperation on recognition of qualifications). We consider that there is low probability that Norway and China will undertake important new commitments regarding regulatory issues in an FTA; and that if such commitments are included in the FTA, they are unlikely to be of significance from an environmental perspective. Thus, our free trade scenario does not include additional commitments regarding 'domestic regulation'.

5.3 Investment

Establishment

The right of establishment is partly covered by commitments in the services sector where countries undertake commitments for modes 3 and 4 of supply. These issues are examined in section 5.2 above. In the following, we will consider whether the free trade scenario should include additional rules regarding establishment in a chapter on investment.

According to the Feasibility Study (2008: 73), various aspects of the FTA will ‘provide an improved investment environment’. However, such effects are to be seen as indirect consequences of elements of the FTA, and there is in the Feasibility Study no reference to any specific rules on establishment. In addition, it refers to cooperation undertaken in joint bodies since 1980 and proposes that such cooperation be continued within the framework of the FTA (2008: 92–93). These proposals are general and do not include the development of legal commitments.

Some of Norway’s FTAs contain rules of relevance to the right of establishment. Article 40 of the FTA between EFTA and Singapore extends the obligation of national treatment to ‘the establishment, acquisition, expansion ... of investments’. This general obligation is subject to some limitations regarding subsidies (art. 40.3), treatment offered by regional or local authorities (art. 40.4), and specific exemptions (art. 46 and Annex XI). Articles 30–37 of Norway’s FTA with Chile contain rules regarding establishment that are even more far-reaching as they do not contain the general exceptions for subsidies and treatment offered by regional or local authorities. The subsequent FTAs with Korea (see art. 1.4) and Peru (see chapter 5) do not contain any obligations concerning establishment.

The draft Norwegian model bilateral investment treaty (BIT) contains a provision that is similar to the one in art. 34 of the Chile FTA. In article [3] it extends NT obligations to ‘the establishment, acquisition, expansion, ... of investments’.⁴⁷ The model BIT contains no general exceptions along the lines of the Singapore FTA, but opens for specific exceptions to be listed in an annex.

The Chinese FTAs examined do not contain provisions extending national treatment to establishment. Relevant provisions include provisions extending MFN treatment to establishment, but with significant exemptions (New Zealand art. 139 and Peru art. 131), and otherwise only recommendatory provisions to promote investment (Chile art. 112, New Zealand art. 151 and Peru art. 128).

Against this background, it is unclear whether establishment is a realistic option in the negotiations between China and Norway. However, given the interest shown by the Norwegian authorities in including establishment in the NT obligation, we have decided to cover this issue in our free trade scenario.

Investment protection

In light of the third version of the Chinese Model BIT⁴⁸ and the draft Norwegian Model BIT as well as the existing FTAs of China and Norway, we find it unlikely that the investment chapter of the FTA will include a most-favoured-nation clause, an umbrella clause or provisions

⁴⁷ The text is available at: <http://www.regjeringen.no/upload/NHD/Vedlegg/hoeringer/Utkast%20til%20modellavtale2.doc>.

⁴⁸ Text from Gallagher and Shan (2009): 433–437.

on performance requirements beyond those that are included for services. Moreover, the 1984 BIT between Norway and China include a fair and equitable treatment provision. Against this background, we have decided to base the free trade scenario on the following obligations in addition to those contained in the 1984 BIT between Norway and China:⁴⁹

National treatment: The draft Norwegian Model BIT contains an unqualified NT obligation (art. 3.1), and a possibility of listing specific exceptions in an annex to the agreement (art. 3). Norway's FTA with Singapore contains a similar NT obligation in arts. 40 and 46.

The NT provision of the Chinese Model BIT is introduced by the following general qualification: 'Without prejudice to its laws and regulations' (art. 3.2). Article 138 of China's FTA with New Zealand does not contain any such qualification, but art. 141 exempt any 'existing non-conforming measures maintained within its territory'. The parties undertake to 'endeavour to progressively remove' such measures. China's FTA with Peru contains similar provisions (arts. 129 and 130), and includes an additional exception for 'the right to adopt or maintain any measure that accords differential treatment to socially or economically disadvantaged minorities and ethnic groups' (art. 129.3).

Against this background, the design of a NT provision in the FTA remains uncertain. In light of the Norwegian discussion of NT clauses in BITs and FTAs, we have decided to use the NT obligation in the Norwegian draft Model BIT as basis for our free trade scenario.

Investor–state dispute settlement: One reason why Norway has negotiated few treaties covering investment protection in recent years is concerns regarding the settlement of investor–state disputes. As the current Norwegian draft Model BIT contains a provision allowing for such settlement, our free trade scenario includes this option.

Both the Norwegian and the Chinese Model BITs provide for a duty to negotiate prior to submitting the dispute to arbitration. Moreover, both Model BITs contain provisions requiring some degree of exhaustion of domestic remedies, the Chinese being more demanding than the Norwegian. Both Models provide for the International Center for the Settlement of Investment Disputes (ICSID) as the arbitration arrangement to be used. In addition to these elements, the Norwegian Model requires that the investor shall have incurred loss. We might assume that a similar requirement would in practice apply under the Chinese Model as well. The Chinese Model provides for a period of six months to pass between the investor raises the case with the relevant authorities and the case is brought to arbitration. No similar provision is included in the Norwegian Model, but we may assume that a similar period would normally be needed for an investor to fulfil its obligation to settle the dispute amicably. Only the Chinese Model includes a 'fork in the road'

⁴⁹ The 1984 BIT contains provisions on fair and equitable treatment, most-favoured-nation treatment, expropriation and transfer.

provision: a provision forcing the investor to make a definitive choice between national remedies and international arbitration.

Against this background, we have decided that the investor–state dispute settlement option of the free trade scenario will include the following elements: (a) a duty to attempt to resolve the dispute for a minimum of four months prior to bringing the case to international arbitration, (b) a duty to attempt domestic remedies where such are reasonably available, and (c) ICSID to be the only available arbitration arrangement.

5.4 Measures to avoid negative environmental consequences

General measures

In light of the general clauses included in the Chinese and Norwegian FTAs examined for the purpose of this report, our free trade scenario will be limited to preambular text. All the preambles of the FTAs examined, except that between China and Costa Rica, contain references to environmental protection. We may distinguish three ways in which the FTAs refer to environmental protection: (a) general agreement to promote environmental protection, i.e. no specific link to the FTA (EFTA–Chile FTA); (b) agreement that trade liberalization or economic integration should contribute positively to environmental protection, i.e. an indirect link to the FTA (EFTA–Korea, EFTA–Singapore, and China–New Zealand FTAs); and agreement that the FTA should be implemented in a manner consistent with environmental protection, i.e. a direct link to the FTA (EFTA–Peru, China–Chile, and China–Peru FTAs). For the purpose of avoiding negative environmental consequences of the FTA, we assume that preference will be given to the approach most likely to influence the interpretation and application of the provisions of the FTA in an environmentally-friendly manner. We consider those preambular clauses that are directly linked to the implementation of the FTA to be most likely to influence the interpretation and application of the FTA, and will therefore use the preambular clauses of the EFTA–Peru, China–Chile, and China–Peru FTAs as bases for our free trade scenario.

Measures related to trade in goods

In light of the general clauses included in the Chinese and Norwegian FTAs, our free trade scenario in relation to trade in goods will be limited to the inclusion of general exceptions. All the FTAs examined contain such exceptions and cover the elements set out in GATT art. XX(b) and (g). We may distinguish five ways in which the FTAs incorporate general exceptions: (a) general incorporation into the agreement by reference (China–Chile and China–New Zealand FTAs); (b) general incorporation into specific chapters of the FTA through reference (China–Costa Rica and China–Peru FTAs); (c) general incorporation into only the trade in goods chapter of the FTA through reference (EFTA–Peru FTA); (d) incorporation through reference, but with unclear scope (EFTA–Korea FTA); and (e) reproduction of the text of GATT art. XX made applicable to the whole FTA (EFTA–Chile and EFTA–Singapore FTAs). In addition, some of the FTAs specify that the environmental

clauses extend to living and non-living natural resources (China–Costa Rica, China–Peru, and China–New Zealand FTAs).

The ways in which the FTAs refer to GATT article XX thus differ significantly as regards the scope of their provisions. We find that many of these differences can be ascribed to poor drafting of the FTAs, in particular the EFTA FTAs, and that the intentions of the parties to the FTAs do not differ as much as the FTAs as such might indicate. We find the main outstanding question to be whether the general exceptions shall extend to rules concerning technical barriers to trade (covered by the TBT Agreement of the WTO) and sanitary and phytosanitary measures (covered by the SPS Agreement of the WTO). All the Norwegian FTAs as well as the China–Costa Rica and China–Peru FTAs can be interpreted to extend the general exception to TBT and SPS obligations. However, the Norwegian FTAs remain somewhat unclear.

Against this background, our free trade scenario will include a reference to GATT art. XX(b) and (g), and the scope of this provision will extend to TBT and SPS obligations.

Measures related to trade in services

In light of the general clauses included in the Chinese and Norwegian FTAs, the free trade scenario in relation to trade in services will be limited to the inclusion of a general exception in line with GATS art. XIV to be applicable only to the services chapter. China's FTAs with Costa Rica (art. 159.2) and with New Zealand make clear that GATS art. XIV(b) as applied in the FTAs include environmental measures. The free trade scenario will include a clarification along these lines.

Measures related to investment

The draft Norwegian Model BIT contains two provisions aimed at offsetting potential negative effects of investment commitments on environmental policy. According to art. [12], which carries the heading 'Right to regulate':

Nothing in this Agreement shall be construed to prevent a Party from adopting, maintaining or enforcing any measure otherwise consistent with this Agreement that it considers appropriate to ensure that investment activity is undertaken in a manner sensitive to health, safety or environmental concerns.

The second provision is the general exception included in art. [24]:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between investments or between investors, or a disguised restriction on international [trade or] investment, nothing in this Agreement shall be construed to

prevent a Party from adopting or enforcing measures necessary⁵⁰:
... ii. to protect human, animal or plant life or health; ... or v. for
the protection of the environment. [footnote in the original]

The third version of the Chinese Model BIT, which dates from the mid-1990s, does not contain any relevant provision to accommodate environmental policy concerns. However, there is one recent Chinese FTA with a general exception that applies to the investment rules – art. 159.2 of the FTA with Costa Rica states that art. XIV of GATS applies to the chapter containing rules on investment and that the provision extends to environmental measures necessary to protect human, animal or plant life or health. In addition, art. 200 of China's FTA with New Zealand states that art. XIV is 'incorporated into and made part of this Agreement, *mutatis mutandis*.' As this FTA contains separate chapters on services and investment, it is unclear whether the exception is to apply only to the services chapter or be extended to the investment chapter as well. The fact that the general exceptions are contained in a provision towards the end of the FTA and not in the individual chapters, and moreover that the provision refers to investment in para. 3, suggests that the exception might be extended to the investment chapter.

Against this background, we base our free trade scenario on the incorporation of a reference to art. XIV of GATS, supplemented by a statement that the provision applies to environmental measures.

⁵⁰ For greater certainty, the concept of 'necessity' in this Article shall include measures taken by a Party as provided for by the precautionary principle, including the principle of precautionary action.

6. Green trade scenario

6.1 Introduction

The green trade scenario builds on the free trade scenario, but with the measures to secure free trade complemented by additional measures to enhance the positive environmental impacts and safeguard against negative impacts.

In this chapter we describe trade facilitation and safeguarding measures in the green trade scenario. Discussion of the impacts of the green trade scenario, with recommendations for action at the national and international levels, is deferred to chapter 9.

The green trade scenario is an attempt at bringing forward the discussion on how to promote and safeguard the environment in the context of trade. Both China and Norway have contributions to make in this context. For a more detailed presentation of Chinese challenges and points of view, see Hu Tao (2011).

One core issue for the green trade scenario is whether and to what extent current bilateral environmental cooperation should be integrated into the agreement. There exist several bilateral agreements between China and Norway that relate to environmental issues, of which we may note the following in particular (presented in inverse chronology):

- MoU on Cooperation in the Field of Water Resources between the Ministry of Water Resources of China and the Ministry of Petroleum and Energy of Norway, signed 10 June 2010;
- MoU on Cooperation in the Petroleum Sector between the Ministry of Petroleum and Energy of Norway and the National Energy Administration of China, signed 12 January 2009;
- MoU on Environmental Cooperation between the Ministry of the Environment of the Kingdom of Norway and the Ministry of Environmental Protection of China, signed 30 June 2008;
- Agreement on Fisheries Cooperation between the Ministry of Fisheries and Coastal Affairs of Norway and the Ministry of Agriculture of China, signed 26 March 2007;
- MoU on Enhancing Cooperation in Energy Conservation and Renewable Energy between the Ministry of Petroleum and Energy of Norway and the National Development and Reform Commission of China, signed 27 September 2006.⁵¹

In light of the mandate for this report, as well as the fact that many of the agreements are well established and concern environmental issues only partially, we have decided against basing our green trade scenario on integrating existing bilateral agreements between Norway and China.

⁵¹ An assessment of the Sino–Norwegian environmental cooperation until 2005 has been carried out by Wu Xiaofu et al. (2007).

A second core issue is whether and to what extent the scenario should include possibilities of future environmental cooperation to be initiated and organized under the agreement. Here we have concluded that the green trade scenario shall provide for some options as to such cooperation. The assessment of such initiatives will, as far as possible, take into account interaction with existing bilateral cooperation.

6.2 General measures

We assume that, under a green trade scenario, the general provisions concerning the relationship between the environment and trade in the preamble of the FTA will further underline and specify the objective of ensuring that the FTA avoids negative environmental consequences and contributes to improved environmental conditions. This scenario will include the following categories of provisions in the preamble of the FTA:

- a statement on the relationship between the FTA and existing environmental agreements;
- a statement concerning the interpretation of obligations under the FTA in light of environmental commitments and policies;
- a statement concerning the national implementation of the FTA in light of environmental policy measures;
- a statement concerning the future cooperation under the FTA in light of environmental objectives.

In addition, the free trade scenario has included provisions in the main body of the FTA. In particular, four categories of provisions are relevant, in addition to the general exceptions discussed in section 5.4 above: (1) linking the objective of the FTA to environmental objectives and/or sustainable development; (2) linking the basic principles of the FTA to environmental principles, such as the precautionary principle and the polluter pays principle; (3) including elements in the FTA that could contribute to more effective implementation and enforcement of environmental policy; (4) obligations to not lower environmental standards or relax environmental measures in order to gain competitive advantages.

A working group under EFTA has issued draft model provisions concerning environmental and labour standards to be included in future EFTA free trade agreements (EFTA Paper, 2010). The green trade scenario will use the language of the draft model provisions as a starting point. Further elaboration of relevant provisions is undertaken in chapter 9 along with an assessment of potential effects of such provisions.

6.3 Defining environmental goods and services

There is no general agreement on the definition of ‘environmental goods’ for the purpose of the negotiations in the Doha Round, and the approach of the negotiators has therefore been to develop lists of environmental goods.⁵² Environmental services, on the other hand, have been identified

⁵² See, e.g. WTO doc. TN/TE/INF/6, para. 47.

in WTO's 'W/120' document,⁵³ and, although there is considerable discussion of the scope of environmental services, the schedules of most countries reflect the definition of environmental services in the W/120 document. The main international institutions that have undertaken work to clarify the environmental goods and services concepts are the OECD, APEC and UNCTAD (see box 6.1). The OECD and APEC have elaborated lists of environmental goods and services.

The negotiations on environmental goods and services in the WTO face a range of challenging issues, including striking a balance between the trade and economic interests of various groups of countries, how to deal with criteria based on processes and production methods (PPMs), how to deal with 'multiple-use' products and services, how to relate to certification schemes, how to update lists in light of new knowledge and technological developments, and concerns regarding the capacity of customs authorities to deal with special treatment of certain goods. These issues are generally of less concern in the negotiations between Norway and China. Moreover, although agreement between Norway and China on lists of environmental goods and services and experiences thereby gained may be referred to in subsequent WTO negotiations, they would not be decisive for future positions in the WTO. Experience so far in the WTO and concerns regarding future negotiations should therefore not prevent Norway and China from addressing environmental goods and services in their negotiations.

Of particular interest in the Chinese–Norwegian context is how to deal with proposals and suggestions that have been put forward by developing countries, including 'non-timber forest products, products based on traditional knowledge (TK) and products made from natural fibres such as jute and coir.' (WTO CTESS 2004, para. 58), as well as 'biotrade and trade in organic agricultural products', including goods and services derived from the sustainable use of biodiversity (UNCTAD 2004, para. 24).

For the purpose of this report, we regard the core of the concept 'environmental goods and services' to be goods and services that *promote* the protection and preservation of the environment. This concept can be extended to cover goods and services that promote the *broader objective* of sustainable development. Moreover, it can be extended to products and services that can be deemed as showing particularly *good environmental performance* when compared to other like products or services, when the environmental impact throughout their life-cycle is tested against a list of environmental indicators. We base our definition of environmental goods and services in the core concept, and open up for extending the concept in the two directions indicated.

⁵³ Services Sectoral Classification List, WTO doc. MTN.GNS/W/120.

Box 6.1 Definitions of ‘environmental goods’ and ‘environmental services’

Defining environmental goods and services

UNCTAD: ‘An environmental good can be understood as equipment, material or technology used to address a particular environmental problem or as a product that is itself “environmentally preferable” to other similar products because of its relatively benign impact on the environment. Environmental services have been defined as: (a) services provided by ecosystems (e.g carbon sequestration); or (b) human activities to address particular environmental problems (e.g. wastewater management).’

OECD/Eurostat have defined environmental industry as: ‘activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems.’

The *OECD list* of environmental goods was the result of an exercise intended to illustrate, primarily for analytical purposes, the scope of the ‘environment industry’. It flowed directly from joint OECD and Eurostat work on a manual for national statisticians to assist them in measuring their national environmental industries. On the basis of the general categories of goods and services, the Joint Working Party on Trade and Environment added examples of specific goods. The OECD’s larger list was created deductively: starting from general categories based on the classifications in the environment industry manual, it added specific examples in order to produce an estimate of average tariffs on a previously undefined class of goods.

The *APEC list* started with nominations, not unlike the request-offer procedures traditionally used in trade negotiations. This yielded a list of goods which was then arranged according to an agreed classification system. Since the aim of the APEC list was to obtain more favourable tariff treatment for environmental goods, APEC member economies limited themselves to specific goods that could be readily distinguished by customs agents and treated differently for tariff purposes. For this reason, issues related to ‘like products’, products defined by particular processes or production methods, and products defined by their life-cycle impacts were not addressed, with the result that some goods were omitted from the list that were included on the OECD list.

Sources: UNCTAD 2003, OECD 2005.

Given the differences between Norway and China regarding levels of trade liberalization, we note that China will probably have to undertake more far-reaching trade concessions than Norway in order to promote trade in environmental goods and services. In the following, we explore how the core concept of environmental goods and services can be extended in light of Chinese interests. Here we assume that both Norway and China would support a definition that prevents misuse in the sense that it could lead to increased trade in goods or services that are environmentally harmful.

To further explore the concept, it is helpful to consider the different aspects of the ‘environment’. Here we classify ‘environment’ according

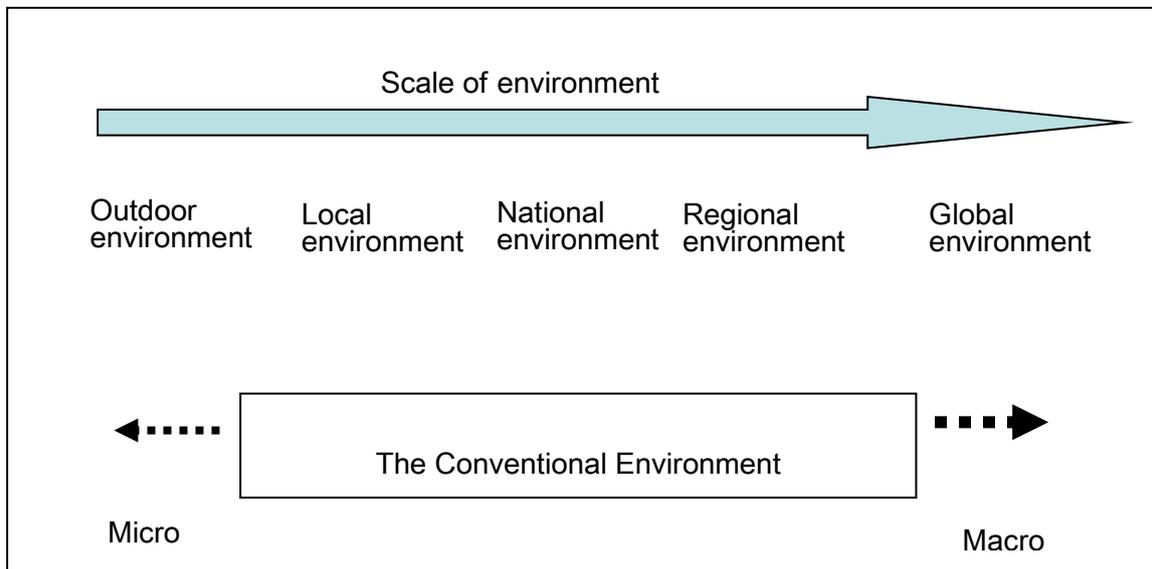
to spatial nature of the environmental externality. In economic theory it is the externality that gives a reason for public policy, including facilitation of trade in environmental goods and services. Hence, it seems reasonable to focus on the externality in order to identify environmental goods and services.

Going from the micro- to the macro-level, we may distinguish the indoor environment, outdoor environment, local environment, national environment, regional environment and global environment, as shown in Figure 6.1.

Indoor environmental quality has become a huge health problem. In poor (predominantly rural) households, cooking and heating often leads to very high levels of indoor air pollution. Concentrations of particulate matter and SO_2 may reach 500–1000 $\mu\text{g}/\text{m}^3$ or more, far higher than outdoor levels. The WHO estimates that two million people worldwide die prematurely each year because of indoor air pollution.

Outdoor, local and national environmental problems are the normal environmental problems that are addressed by national environmental policies. The major problems are air pollution, water pollution, solid waste, ecosystem degradation, land use, noise and radiation.

Figure 6.1 Environmental externalities from the micro- to the macro-level



Regional and global environmental problems have been recognized in the past decades. Major regional and global problems include climate change, ozone depletion, biodiversity loss, persistent organic pollutants and other hazardous substances. Regional and multilateral environmental agreements have sought to deal with such environmental problems, with varying degrees of effectiveness.

A list of environmental goods and services could be structured as follows:

- *Indoor environmental goods and services* are relevant for improving the indoor environment;
- *Local environmental goods and services* are relevant for improving the outdoor, local environment;
- *Global environmental goods and services* are relevant for improving the regional and global environment.

This list, with entries for indoor and global environmental goods and services, is in some senses broader than the current definitions used by the OECD, APEC, UNCTAD and WTO. It recognizes the human need for a good global and indoor environment. At the micro (indoor) level it corresponds to initiatives of the WHO, and at the macro (global) level it fits into the UNFCCC, the Montreal Protocol, the CBD and other multilateral environmental agreements. Moreover, it takes more clearly into consideration the major interests of developing countries, as it includes main focuses on environmental issues of particular concern to those suffering from poverty, as well as on environmental problems for which developing countries may provide goods and services.

6.4 The environmental priorities of China and Norway

As part of an FTA between China and Norway a green trade scenario is likely to focus on environmental goods that correspond to the environmental priorities of the two countries.

The environmental priorities of China (for more details, see Hu Tao, 2011) have traditionally been:

Indoor > outdoor/local/national > global

Since the introduction of the concept of 'scientific development' and as recently reconfirmed in the 12th Five Year Plan, the Chinese priorities have changed to:

Indoor + outdoor/local/national + global

In general, we can observe that Chinese priorities have shifted from a high priority of indoor but also of outdoor local environmental problems, to regarding all groups of environmental problems as equally important.

The environmental priorities of Norway were traditionally similar to the traditional priorities of China: indoor and local problems first, then national, then global. However, in recent years the indoor, local and even national environmental problems have diminished greatly, while global environmental problems, climate change in particular, are emerging and large. The current priorities in Norway could therefore, in very broad terms, be illustrated as follows:

Global > outdoor/local/national > indoor

Thus we see that global environmental problems are emerging higher on the agenda of both countries. Having mastered some local and national problems, Norway may also be interested in exporting related environ-

mental goods, services and technologies. China also has a significant environmental industry interested in expanding its market shares.

It may also be noted that the international community (including the UN, the WTO and the WHO) may see it as its particular role to focus on global problems such as climate change, and on public health issues like indoor air pollution, deeming it better to leave outdoor local and national environmental issues to the national governments.

6.5 Trade in goods

Identification of 'environmental goods'

The EU, the USA, Canada, Japan and other countries including Norway have presented to the negotiations under the Doha Ministerial Declaration a list of 153 goods by HS entry (Committee on Trade and Environment Special Session, 2009) that, according to the sponsors, should '(1) be particularly important – even critical – for environmental protection, and workable from a customs facilitation perspective; (2) have the potential for a high degree of convergence among Members; and (3) serve as a basis for further work and negotiation under paragraph 31 (iii) of the Doha Declaration.'⁵⁴ The list includes 'air compressors mounted on a wheeled chassis for towing', considered an example of air-handling equipment for polluted air; 'industrial mufflers' to reduce engine noise, etc. In other words, the list is both detailed and specific list. None of the 153 goods have been explicitly suggested by Norway. There have also been many other initiatives to isolate environmental goods, and many problems along the way (see e.g. Sugathan, 2009).

One weakness of the '153-list' is that it does not cover the whole spectrum of environmental goods. In particular, there are only a few products related to the indoor environment and global environment. Most of China's demand for indoor environmental goods and global environmental goods is missing, such as indoor ventilation equipment and indoor drinking water equipment.

As part of the present report, a new list of 227 goods has been developed by a Chinese team of researchers: see Hu Tao, 2011. The list primarily reflects Chinese perspectives, and is based on the following considerations:

- Demands for improving the indoor, local and global environment
- To expand employment, in particular in China
- To facilitate export and trade
- To recognize special and differential treatment for some goods that are less competitive

Tariffs on environmental goods

Since Norway has zero import tariff on most industrial goods, a 'green' initiative to exempt the green goods from import tariff is unlikely to

⁵⁴ See JOB(09)/132 of 9 October 2009, p. 4, para. 11.

produce any change for the country, unless such a list is extended to agricultural goods. According to Sugathan (2009) China has an average import tariff between 5 and 10% on the goods listed in the 153-list. Hu Tao (2011) indicates a range of 4 to 8%. We assume that the green trade agreement will eliminate tariffs on designated environmental goods.

Non-tariff barriers and environmental goods

The green trade scenario focuses on the relationship between non-tariff barriers to trade and environmental goods. We have identified four main elements that can be relevant in this context: (1) to facilitate trade between in such goods, establishing a 'fast track' for environmental goods; (2) the possibility of taking into account environmental concerns in decisions regarding import and export, e.g. Chinese export restrictions; (3) to take into account environmental concerns when developing domestic standards; and (4) to take into account environmental concerns when developing international standards.

The green trade scenario includes these four elements. A selection of these elements is further elaborated in chapter 9 based on the draft model provisions concerning the environment and labour standards to be included in future EFTA free trade agreements (EFTA Paper, 2010). In order to study the potential effects of such elements, chapter 9 will consider the application of the elements in specific case studies (clean-energy products and carbon capture and storage (CCS)-related products).

In light of the above discussion of Chinese export controls (see in particular 5.1), the green trade scenario will consider the option of accommodating such measures to the extent that they are justifiable from an environmental perspective.

Intellectual property rights

Many low-cost countries, including China, regard IPRs as key barriers against developing their environmental industry. Some 80% of China's environmental industry firms are small and medium enterprises with less than 15 million yuan (about 13 million NOK) in fixed assets. The technological level of most firms is about the same as in developed countries of the 1980s or 1990s. Only about 20% of firms have filed their own patents. Foreign patents are often too expensive to buy. The green trade scenario will consider how IPR can be regulated in the FTA in order to promote the use of environmental goods and encourage technology transfer, while at the same time achieving the level of IPR protection required under the TRIPs Agreement. This aspect of IPRs will be considered where relevant in the case studies in chapter 9. On the basis of Chinese FTAs, we have identified the following elements that will be included in the green trade scenario for this purpose:

- A reference to general principles to be applied when considering IPR issues under the FTA. Article 161 of the FTA with New Zealand identifies the following three principles: 'certainty over the protection and enforcement of intellectual property rights', 'minimise compliance costs for business', and 'facilitate inter-

national trade through the dissemination of ideas, technology and creative works' (see also art. 144.2 of the FTA with Peru, as well as the FTA between EFTA and Peru, art. 6.2);

- A provision that the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and the transfer and dissemination of technology (see art. 113.2 of the FTA with Costa Rica); and
- A provision to prevent practices which constitute abuse of intellectual property rights by rights-holders, or unreasonably restrain competence or adversely affect or limit technology transfer (see arts. 144.4 and 147 of the FTA with Peru).

One central issue in the trade and environment debate has been the relationship between obligations under the CBD, supplemented by the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from Their Utilization, and the TRIPs Agreement. The free trade scenario includes options for resolving the tensions between the effective protection of IPRs, patents in particular, and efforts to preserve and protect biodiversity and ensure the sharing of benefits from the use of genetic resources. Many of China's FTAs have included provisions that deal with these issues. Provisions that can be included and the potential effects of such provisions will be assessed in chapter 9.

Other measures

The report from the Chinese research team (see Hu Tao, 2011) highlights a further two regulatory areas and measures of relevance for facilitating trade in environmental goods: low demand, and public procurement. Measures to deal with the problem of *low demand* for environmental goods and services will be further explored in section 9.2.

The second barrier is related to procedures and routines for *public procurement*. The municipality is usually the sole consumer of many environmental goods, especially those that are packaged with investment, see below. In China, suppliers often compete to get the best relations with the municipal government, rather than competing on the basis of technology and cost-effectiveness. The trade policy review of China offers the following assessment:

Since its previous Trade Policy Review in 2008, China has continued to take steps to improve transparency. Nonetheless, some aspects of China's trade policy regime remain complex and opaque. ... The complexity and opacity can leave scope for administrative discretion and thus corruption. According to a 2008 Corruption Perceptions Index, which measures perceptions of corruption among public officials and politicians in 180 countries, China ranked 72nd, with a score of 3.6 out of 10; in 2005, it ranked 78th (out of 159 countries) with a score of 3.2. A 2007 joint Circular by the Supreme People's Court and Supreme People's Procuratorate on the Opinions to Address the Issues in Handling Criminal Cases Involving the Taking of Bribes explicitly classifies as bribery certain acts by government

officials, such as securing benefits for someone and, in return, accepting corporate shares from the person without due payment. The Government recently adopted various measures to enhance transparency in the public sector.⁵⁵

For the reasons that we excluded public procurement in the screening (see chapter 4) we will not further explore these issues in the green trade scenario.

One additional measure to be considered is the use of *countervailing measures* in relation to environmental goods or services. The controversies linked to Chinese exports of wind-power equipment and solar panels, where the USA has raised cases claiming that Chinese subsidized exports is causing injury to US producers, and that China should compensate the USA or else the USA will impose countervailing duties.⁵⁶ Similar issues are relevant in a Norwegian context, as illustrated recently by the notification to Oslo Stock Exchange by the Renewable Energy Corporation ASA (REC) that it is considering closing down production capacity at three of its factories in Norway.⁵⁷ Building up production capacity for renewable energy equipment is a high priority from an environmental perspective, in Norway and China alike.

The establishment of renewable energy industry may require government support, not least since renewable energy competes with fossil fuels. It can also be argued that it is particularly important to make cheap production capacity for renewable energy available in developing countries like China, where the increase in energy demand is high but average ability to pay is low. Moreover, China can argue that countervailing measures must be seen in light of the principle of common but differentiated responsibilities, as set out in Principle 7 of the Rio Declaration, as well as the obligations undertaken to promote technology development and transfer, and to provide new and additional financial resources for such purposes according to the UN Framework Convention on Climate Change art. 4.1(c), 4.3 and 4.5. It is also relevant that the obligations of developing countries under the UNFCCC are made dependent on developed countries fulfilling their obligations of technology transfer and commitment of financial resources (art. 4.7). Against this background, we assume that China will have an interest in limiting the possibility of using countervailing measures in sectors of green technology with a particular focus on the renewable energy industry. Box 6.1 makes clear some of the challenges in the solar energy sector as seen from a Chinese perspective.

From a Norwegian perspective, and in light of the above-mentioned challenges facing REC, we assume that Norway may want to maintain the possibility of protecting environmental industries from sudden changes in levels of competition. This can be done through safeguards

⁵⁵ TPR China, WT/TPR/S/230, p. 12, para. 9.

⁵⁶ See China — Measures concerning wind power equipment, dispute DS419, and ‘U.S. Solar Panel Makers Say China Violated Trade Rules’, *New York Times*, 19 October 2011.

⁵⁷ Notification to Oslo Stock Exchange (Oslo Børs) 28 September 2011, see www.newsweb.no/newsweb/search.do?messageId=290338.

measures, and need not entail countervailing duties or anti-dumping duties. In the FTA between EFTA and Hong Kong, Norway has undertaken ‘not [to] apply countervailing measures as provided for under Article VI of the GATT 1994 and Part V of the WTO Agreement on Subsidies and Countervailing Measures’ (art. 2.11(1)). Moreover, Norway has undertaken ‘not [to] apply anti-dumping measures as provided for under Article VI of the GATT 1994 and the WTO Agreement on Implementation of Article VI of the GATT 1994’.

Box 6.2 Trade measures against Chinese exports of solar power technologies



New energy exports face trade barriers

Updated: 2011-11-17 08:02

By Ding Qingfen and Du Juan (China Daily)

BEIJING - Exports of new energy and energy-saving products will be targeted by trade barriers in developed countries, led by the United States, a commerce official warned.

To offset this, exporters will need to improve technology and their capacity for innovation to enhance competitiveness, said Zhang Yujing, president of the China Chamber of Commerce for the Import & Export of Machinery & Electronic Products. Zhang's remarks follow the US Commerce Department's decision last week to investigate if Chinese companies are selling solar cells below cost and receiving illegal government subsidies. The investigation came after a petition was lodged by a group of US solar companies.

The ministry said in a statement on its website last week that "China is very concerned about the anti-dumping, anti-subsidy investigation into Chinese photovoltaic (PV) solar cell producers, and it will hurt bilateral cooperation in the clean-energy sector as well as the US solar industry".

Zhang warned that a trend was emerging in developed countries to erect trade barriers against exports of new energy and energy-saving products to protect their own industries.

Although the US economy recorded solid growth in the third quarter, easing recession fears, economists warned that the recovery remained shaky. The EU is trying to cope with debt woes.

China has been a victim of trade protectionism for years, especially since the global financial crisis.

Subsidies and dumping may also be detrimental to the environment. One area where elimination of subsidies may prove environmentally beneficial is fisheries subsidies (see paras. 28 and 31 of the Doha Declaration). Similarly, some industrial and agricultural subsidies, as well as anti-competitive practices, have been recognized as promoting or supporting environmentally harmful activities.

Against this background, the green trade scenario will assume that Norway and China undertake not to apply countervailing duties and anti-dumping duties in relation to environmental goods. We also assume that this obligation is extended to services associated with such products. Further, the scenario assumes that countervailing and anti-dumping measures remain available where they can be justified on the basis of environmental or other grounds.

6.6 Trade in services

Environmental services

Environmental services represent one main category of services – category 6 of the WTO Services Sectoral Classification List (MTN.GNS/W/120). According to the Feasibility Study (2008: 63):

Several Norwegian businesses in the environmental services sector are already engaged in the Chinese market, providing various services such as advanced solutions enabling recovery and recycling of materials, biological wastewater treatment for both the industrial and municipal sectors. There is, moreover, reason to believe that given favourable conditions, the trade of environmental services between Norway and China has potential to grow substantially.

The Norwegian and Chinese schedules specify the following sub-categories of environmental services:

Norway	China
A. Sewage Services (CPC 9401)	A. Sewage Services (CPC 9401)
B. Refuse Disposal Services (CPC 9402)	B. Solid Waste Disposal Services (CPC 9402)
C. Sanitation and Similar Services (CPC 9403)	C. Cleaning Services of Exhaust Gases (CPC 9404)
D. Other - Noise abatement services (CPC 9405) - Nature and landscape protection services (CPC 9406) - Other environmental protection services (CPC 9409) - Cleaning services of exhaust gases (CPC 9404)	D. Noise Abatement Services (CPC 9405)
	E. Nature and Landscape Protection Services (CPC 9406)
	F. Other Environmental Protection Services (CPC 9409)
	G. Sanitation Services (CPC 9403)

While Norway and China differ somewhat in how they organize their classification of environmental services, they include the same broad categories. However, this classification of environmental services has been criticized. The WTO Secretariat notes that:

Classification of environmental services contained in W/120 has been repeatedly criticized for being obsolete. Its focus on infrastructure services and end-of-pipe technologies is considered too narrow and many consider that it does not account for developments which have occurred in the environment industry over the last 20 years.⁵⁸

⁵⁸ WTO doc. S/C/W/320, para. 49.

Several proposals have been launched to revise the classification, but there is currently no general consensus on this issue.⁵⁹ Environmental consulting is one important service sector that is not explicitly identified in the above categories, and which is subject to differing opinions regarding its classification.⁶⁰ Several services that have been classified elsewhere have been identified as being ‘environment-related’, including business services (e.g. advisory and pre-design architectural and engineering services, various research and development services, technical testing and analysis services, services related to forestry, and services incidental to manufacturing), construction services (e.g. construction of waterworks, sewer systems, and waste treatment facilities), and distribution services (e.g. wholesale trade services of waste and scrap and materials for recycling).⁶¹ The UN Statistics Division issued a new version of the Central Product Classification (CPC version 2) on 31 December 2008, significantly revising the former classification of environmental services.⁶²

The Chinese research team observes that China is pursuing negotiations on environmental services with various trading partners, including Chile, Singapore, Australia and New Zealand; further, that these negotiations use the UN CPC classification and consider using the proposal advanced by the EU in the Doha Round (see Hu Tao, 2011). Recent Norwegian schedules in EFTA FTAs follow the EU proposal with only minor adjustments (see Norwegian schedules in the FTAs with Chile and Korea). The Norwegian schedule in its FTA with Hong Kong, however, differs from other schedules: it is based on the revised (but not the most recent) UN CPC (the CPC provisional, not CPC version 2), and contains the following in the form of reservations (Appendix 4 of the FTA):

<p>49. Sector: Sub-Sector: Industry Classification:</p> <p>Type of Reservation:</p> <p>Level of Government:</p> <p>Legal basis:</p> <p>Reservation:</p>	<p>ENVIRONMENTAL SERVICES</p> <p>CPC Prov. 9401 Sewage services CPC Prov. 9402 Refuse disposal services CPC Prov. 9403 Sanitation and similar services CPC Prov. 9404 Cleaning services of exhaust gases CPC Prov. 9405 Noise abatement services CPC Prov. 9406 Nature and landscape protection services CPC Prov. 9409 Other environmental protection services n.e.c. CPC Prov. 96322 Preservation services of historical sites and buildings CPC Prov. 96332 Nature reserve services including wildlife preservation services</p> <p>Market Access (Article 3.5) National Treatment (Article 3.6)</p> <p>All</p> <p>Public service functions in the environmental sector, whether owned and operated or contracted out by municipal, regional or central government are exempted from market access and national treatment obligations. Norway reserves its right to maintain or modify any scheme or measure of the type described above.</p>
--	---

⁵⁹ Ibid. paras. 65–72.

⁶⁰ Ibid. paras. 52–56.

⁶¹ Ibid. para. 50.

⁶² See <http://unstats.un.org/unsd/cr/registry/cpc-2.asp> and *ibid.* paras. 61–64.

50. Sector:	ENVIRONMENTAL SERVICES
Sub-Sector:	
Industry Classification:	CPC Prov. 9409 Other environmental protection services n.e.c.
Type of Reservation:	Market Access (Article 3.5) National Treatment (Article 3.6)
Level of Government:	All
Legal basis:	
Reservation:	Norway reserves the right to designate institutions responsible for radiation surveillance for public purposes, and to give exclusive rights for the supply of such services for public purposes.

We observe that China and Norway show some flexibility when defining environmental services for the purpose of negotiating FTAs. The green trade scenario assumes that flexibility will be available during negotiations of the China–Norway FTA.

Above we outlined an approach to the concept of environmental goods and services that emphasizes indoor environmental quality and global environmental quality in addition to the conventional themes of outdoor environmental quality. For services in particular, such an emphasis is broader than the current definitions. An additional element highlighted by the Chinese research team (see Hu Tao, 2011) concerns China’s advantages in sectors of labour-intensive services, as well as in sectors where there are close links between environmental goods and associated services. Given the conclusion of our screening (section 4.2), the green trade scenario will not include additional commitments regarding mode 4 of supply (presence of natural persons) for environmental services.

Environmental services are often supplied in conjunction with environmental goods and tend to represent the predominant element in the package (about 65% in value terms), with some sectoral variations.⁶³ Developed-country markets are now considered to be mature; growth is modest, but they are expected to continue to dominate exports of environmental services in the future.⁶⁴ The environmental sector in developing and transition economies represented about 14% of the global industry in 2006. While these countries are net importers of environmental services, some of them have started to export, mainly on a regional basis. Their greatest export niches appear to be in environmental engineering, testing and analysis, research and development and consultancy. Environmental services markets are experiencing significant growth in developing countries.⁶⁵ Small and medium-sized enterprises, prevalent in developing countries, represent an important share of the market, especially in non-infrastructure environmental services like air and noise pollution abatement services, and environmental consulting.⁶⁶

The Feasibility Study describes the Norwegian market for environmental services as follows (2008: 63): ‘Partially due to a history of rigorous environmental regulations, the Norwegian market for environmental

⁶³ Ibid. para. 7.

⁶⁴ Ibid. para. 9.

⁶⁵ Ibid. para. 10.

⁶⁶ Ibid. para. 11.

services is diverse and advanced, and the Norwegian providers of environmental services have years of experience meeting strict requirements. Norwegian actors hold specialised competence in niches such as renewable energy, waste management, sewage treatment, and air and water surveillance technology and systems.' Moreover, 'China has opened all categories of environmental services except environmental quality monitoring and pollution source inspection. Foreign enterprises may establish joint ventures with Chinese enterprises in China, and there is no limitation on ownership' (ibid).

The green trade scenario will be based on the assumption that further liberalization of trade in environmental services may be both to the benefit and to the disadvantage of the environment. This will depend on the commitments undertaken and the interaction between such commitments and existing or future domestic measures to protect the environment, as well as the structure of the existing industry. For example, commitments regarding market access for refuse disposal services may strengthen or weaken domestic measures taken to protect the environment. It is particularly important to take into account the possibility of negative environmental impacts for services such as wastewater treatment, refuse collection and disposal, or street cleaning, which are typically provided to local communities by the public authorities.⁶⁷

Against this background, the green trade scenario will contain a mix of various commitments in order to realize 'win-win' (trade and environment) and 'win-win-win' (trade, environment, development) opportunities and avoid environmentally harmful consequences of commitments. The scenario will not be limited to environmental services as defined in the Norwegian and Chinese WTO schedules, but will take into account Chinese export interests as indicated above. The specific elements of the green trade scenario are elaborated in relation to the specific sectors to be considered in chapter 9.

Other issues

Subsidies: As indicated above, subsidies may have positive and negative environmental effects. The green trade scenario will aim at enhancing positive and reducing negative effects of subsidies in services sectors.

Article XV of GATS contains only an obligation to undertake negotiations and consultations on subsidies. The Norwegian WTO schedule contains a horizontal reservation regarding subsidies: subsidies remain unbound for modes 1 and 2 of supply, and full commitments are undertaken in relation to market access for modes 3 and 4 of supply. In relation to national treatment and mode 3 of supply, Norway lists the following reservation: 'Eligibility for subsidies may be limited to juridical persons established in Norway. Unbound for research and development subsidies', and the following reservation in relation to mode 4: 'Subsidies available to natural persons may be limited to Norwegian citizens'.

⁶⁷ Ibid. para. 5.

China's schedule contains the following horizontal reservation for national treatment and mode 3 of supply: 'Unbound for all the existing subsidies to domestic services suppliers in the sectors of audio-visual, aviation and medical services.' China has undertaken only limited commitments in relation to mode 4 of supply. We can thus observe that China has undertaken broader commitments than Norway in relation to modes 1 and 2, and that the commitments in relation to modes 3 and 4 are comparable.

The green trade scenario assumes that both countries have some flexibility regarding the regulation of subsidies. With regard to subsidies for environmental purposes, it assumes that the possibility of raising cases against such subsidies as well as the application of countervailing measures will be limited. With regard to subsidies that act to support activities that are harmful to the environment, the scenario assumes that it will remain possible to raise cases against such subsidies, as well as to apply countervailing measures. Further, it assumes that the latter subsidies might be subject to consultation in order to discuss the possibility of eliminating such subsidies.

General exception: The general exception included in GATS art. XIV states: 'Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where like conditions prevail, or a disguised restriction on trade in services, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any Member of measures: ... b. necessary to protect human, animal or plant life or health'. The Marrakesh Ministerial Decision on Trade in Services and Environment notes that 'since measures necessary to protect the environment typically have as their objective the protection of human, animal or plant life or health, it is not clear that there is a need to provide for more than is contained in paragraph (b) of Article XIV'. Further:

In order to determine whether any modification of Article XIV of the Agreement is required to take account of such measures, to request the Committee on Trade and Environment to examine and report, with recommendations if any, on the relationship between services trade and the environment including the issue of sustainable development. The Committee shall also examine the relevance of inter-governmental agreements on the environment and their relationship to the Agreement.

There has been no agreement to proceed with reform of art. XIV on the basis of the reports provided by the Committee. While many states have specified these issues in the general exceptions contained in their bilateral FTAs, EFTA has not done so in any of the FTAs examined (see FTAs with Chile art. 44, Hong Kong art. 3.16, Korea art. 3.15, and Singapore art. 33), and the EFTA consolidated draft model provisions concerning the environment merely refer to GATS art. XIV.

The Chinese FTAs follow a somewhat more nuanced approach. The FTA with Chile (art. 44) only refers to GATS art. XIV; the FTAs with Costa Rica (art. 159.2) and New Zealand (art. 200.2) state that the exceptions

apply to environmental measures; and the FTA with Peru (art. 193.2) contains language that indicates a broad interpretation of the exception.

We note that the general exception of GATT provides for more flexibility as regards environmental measures than does the general exception of GATS. We also note that only in exceptional disputes have measures been accepted as justified on the basis of the GATT general exception. The green trade scenario will be based on a general exception in relation to services that includes the same flexibilities as those of the general exception of GATT, and that the general exceptions make it clear that they apply to measures to protect the environment.

6.7 Investment

The relevant environmental elements included in the draft Norwegian Model BIT are the following:

- Identification of sustainable development as a basic objective (preamble).
- Inclusion of the objective of making investment and environmental protection mutually supportive (preamble).
- Specification of the relationship between national treatment and measures taken to protect the environment (footnote to art. [3]).
- The right to take measures of financial security to remedy environmental damage under the provision on transfer (art. [9.3.ii(d)]).
- A provision on not lowering environmental standards (art. [11]).
- A provision on the right to regulate (art. [12]).
- Measures to ensure that dispute settlement proceedings take appropriately into account environmental perspectives (the possibility of submitting amicus curiae briefs: art. [18.3] and transparency of proceedings: art. [19]).

China has not included any comparable elements in its Model BIT, and has to our knowledge not developed any comparable provisions in the BITs that it has signed so far. The green trade scenario will include the provisions of the draft Norwegian Model BIT.

In addition, the green trade scenario will consider how additional elements related to the environmental performance of investors can be integrated into the FTA. Such elements will be based on the OECD Guidelines for Multinational Enterprises as updated in 2011.⁶⁸ The revised chapter on the environment contains the following elements (text reproduced in its entirety):

Enterprises should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and

⁶⁸ See <http://www.oecd.org/dataoecd/43/29/48004323.pdf>.

generally to conduct their activities in a manner contributing to the wider goal of sustainable development. In particular, enterprises should:

1. Establish and maintain a system of environmental management appropriate to the enterprise, including:
 - a) collection and evaluation of adequate and timely information regarding the environmental, health, and safety impacts of their activities;
 - b) establishment of measurable objectives and, where appropriate, targets for improved environmental performance and resource utilisation, including periodically reviewing the continuing relevance of these objectives; where appropriate, targets should be consistent with relevant national policies and international environmental commitments; and
 - c) regular monitoring and verification of progress toward environmental, health, and safety objectives or targets.
2. Taking into account concerns about cost, business confidentiality, and the protection of intellectual property rights:
 - a) provide the public and workers with adequate, measureable and verifiable (where applicable) and timely information on the potential environmental, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance; and
 - b) engage in adequate and timely communication and consultation with the communities directly affected by the environmental, health and safety policies of the enterprise and by their implementation.
3. Assess, and address in decision-making, the foreseeable environmental, health, and safety-related impacts associated with the processes, goods and services of the enterprise over their full life cycle with a view to avoiding or, when unavoidable, mitigating them. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.
4. Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage.
5. Maintain contingency plans for preventing, mitigating, and controlling serious environmental and health damage from their operations, including accidents and emergencies; and mechanisms for immediate reporting to the competent authorities.

6. Continually seek to improve corporate environmental performance, at the level of the enterprise and, where appropriate, of its supply chain, by encouraging such activities as:

a) adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise;

b) development and provision of products or services that have no undue environmental impacts; are safe in their intended use; reduce greenhouse gas (GHG) emissions; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;

c) promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise, including, by providing accurate information on their products (for example, on greenhouse gas emissions, biodiversity, resource efficiency, or other environmental issues); and

d) exploring and assessing ways of improving the environmental performance of the enterprise over the longer term, for instance by developing strategies for emission reduction, efficient resource utilisation and recycling, substitution or reduction of use of toxic substances, or strategies on biodiversity.

7. Provide adequate education and training to workers in environmental health and safety matters, including the handling of hazardous materials and the prevention of environmental accidents, as well as more general environmental management areas, such as environmental impact assessment procedures, public relations, and environmental technologies.

8. Contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection.

In their comprehensive book on Chinese Investment Treaties, Gallagher and Shan (2009) have proposed a new Chinese model BIT which would include the following reference to the OECD Guidelines (at 445, article 13): ‘The Parties agree to encourage investors to conduct their investment activities in a socially responsible manner, by complying with the OECD Guidelines for Multinational Enterprises and participating in the United Nations Global Compact.’

7. Scoping

7.1 Introduction

According to the mandate from the Norwegian Ministry of the Environment, this report is to assess the consequences of a future FTA between Norway and China for three elements: environmental policy, environmental regulation, and the physical environment. The assessment is limited to those parts of the FTA that are assumed to have the greatest impact on the three elements. In addition, the assessment shall result in proposals to mitigate negative and enhance the positive consequences for the environment and related policy and regulation.

With the help of the Chinese research team, this report has sought to integrate, to some extent, effects in China as well as Norway. However, it is unavoidable that most of the focus is on effects in Norway as well as on measures to mitigate the negative and enhance positive effects relevant in a Norwegian context.

Given the mandate to assess the regulatory and policy effects, on the one hand, and the physical effects, on the other hand, we have sought to strike a balance between case studies and general studies of potential regulatory and policy effects. Case studies are necessary for assessing the physical impacts. Case studies have been selected primarily on the basis of potential physical impacts. However, the usefulness of the case studies in relation to the assessment of regulatory and policy effects will also be taken into account. This chapter explains our choice of case studies.

While regulatory and policy effects can be studied through case studies, such studies must be supplemented by generalized normative studies of regulatory and policy effects. For these generalized studies we take as our point of departure selected elements of the FTA, based on the free trade and green trade scenarios. In this chapter we explain our choice of elements to be subjected to closer scrutiny.

The assessments in chapters 8 and 9 will be based on the two main scenarios elaborated above. We have found it appropriate to relate the scoping directly to those two scenarios.

7.2 Free trade scenario

Case studies

Trade in goods: Our environmental assessment of the FTA focuses on two categories of goods: Norwegian salmon and Chinese clothing.

The arguments for focusing on Norwegian salmon are as follows:

- Export of fish is currently subject to a tariff of about 10% upon import to China. In addition, although countries will need to inspect fish due to health concerns, the trade in fish is by nature dependent on a speedy transit through customs.

- The free trade agreements between Chile and China, and Peru and China specify that Chinese import tariffs are to be lowered from about 10% to zero in ten years, with five years specified for some varieties.
- ‘Fish and marine life’ is currently the largest export category from Norway to China, so improving the terms of trade for fish is likely to be important for Norwegian industry.
- The production of fish (catching and/or farming) is generally acknowledged to give rise to environmental concerns. Transport of fish, in particular fresh and chilled fish, involves additional concerns.

The arguments for focusing on Chinese clothing are as follows:

- Clothing is the only non-agricultural category of goods currently subject to a tariff (approx. 10%) on import to Norway.
- Clothing is the main export item from China to Norway, and has a considerable potential for expansion.
- There are significant environmental concerns related to clothing and textile production, not least discharges to water, as well as greenhouse gas emissions during transport.

Services: The environmental assessment will focus on one category of services: mining. The arguments for focusing on mining are the following:

- The environmental consequences of mining are in general significant.
- Norway has not yet undertaken commitments regarding mining-related services in the WTO.
- Mining is a growing sector in Norway, and is subject to recently revised legislation that has been adopted with a view to promote search for and exploitation of mineral resources.
- Mining is an industry that is of considerable interest to China and within which China has significant experience. China is likely to be interested in investing in the Norwegian mining industry. The two countries have strong and complementary competencies in these areas.
- With global warming, possibilities for transporting minerals between Norway and China through the North-East Passage will improve considerably in the relatively near future.

General studies of regulatory and policy effects

As the free trade scenario does not establish any major new general obligations regarding trade in goods or intellectual property rights beyond those applicable under the WTO, we will not undertake any assessment of regulatory and policy effects of these aspects of a Sino–Norwegian FTA. The environmental regulatory and policy assessment of the free trade scenario will thus focus on new commitments in the fields of services and investment.

Services: The environmental assessment will focus on commitments regarding mode 4 of supply (presence of natural persons) for the following reasons:

- Mode 4 of supply is of considerable interest to China, and Chinese enterprises have experience in the delivery of such services.
- Norway has indicated some flexibility regarding new commitments for mode 4, in particular during the Doha Round.
- Mode 4 of supply raises questions regarding the application and applicability of the exporting and importing countries' rules and policies.
- In particular, this concerns the possibilities of the importing country to ensure high levels of environmental performance of services in a life-cycle perspective.

Investment: The environmental assessment will focus on commitments regarding national treatment (NT) in combination with the access to investor–state dispute settlement for the following reasons:

- Whereas Chinese investments in Norway have as yet been limited, China is currently an important capital-exporting country. Given the complementarity of the Norwegian and Chinese economies, we assume that Chinese investments in Norway will increase.
- Although Chinese investors have only exceptionally been involved in investor–state disputes so far, China has been involved in several disputes in the WTO and is increasingly making use of international dispute settlement. We therefore assume that the Chinese authorities will not have major reservations against Chinese investors making use of investor–state dispute settlement options.
- Case law in investment arbitration shows that national treatment is potentially an important legal basis for investors seeking to challenge environmental rules or policies.
- The draft Norwegian Model BIT contains language further specifying the NT provision in relation to public health, safety and the environment.

7.3 Green trade scenario

Contrary to the free trade scenario – where we consider that regulatory and policy effects will be sector-specific rather than of a general nature, and that regulatory and policy effects have mainly already followed from relevant WTO obligations – in the green trade scenario, regulatory and policy effects have a more prominent position. We have therefore decided to assess the general regulatory and policy effects first, so that the subsequent case studies can build on and illustrate the general assessments of regulatory and policy effects.

General studies of regulatory and policy effects

Integration of general clauses on the environment: We distinguish four categories of general clauses on the environment to be further studied: preambular text, substantive provisions regarding objective and principles, substantive provisions that directly concern rights and duties, and procedural rules. We consider that such general clauses are relevant to the more specific rules on trade in goods (to a limited extent), trade in services (to a somewhat greater extent), and investment (to an important extent). We focus on these rules for the following reasons:

- There is broad discussion of the extent to include such elements in the WTO and FTAs.
- FTA negotiations can be used as a possibility of exploring and discussing such issues with trading partners in order to exchange views and further refine positions.
- Some agreement on these issues has already been established within Norway and between Norway and its trading partners.
- There is a general need to clarify the relationship between trade liberalization and other policy areas.

Fast track for environmental goods and services: The environmental assessment will focus on mechanisms to ensure facilitated trade in environmental goods and services, including ‘trade facilitation’, restrictions on countervailing measures, and extended commitments for environmental services, for the following reasons:

- Trade facilitation is among the topics on which countries have made significant progress during the Doha negotiations.⁶⁹
- Reduced risk of changes in border control requirements and procedures.
- The effects of expanding concepts of environmental goods and services.
- The possibility of undertaking additional commitments: the perspective of developed vs. developing countries; services vs. goods.
- Tailoring the concepts to developing-country perspectives
- Environmental goods and services as part of technology transfer – the obligations to carry out technology transfers under MEAs.
- Compatible with Sino–Norwegian environmental cooperation

Export controls of goods: The environmental assessment will focus on Chinese measures to control the export of goods for the following reasons:

- This topic offers an important opportunity for promoting Chinese interest in the FTA.
- The topic is controversial, and likely to become increasingly so, due to population increase.

⁶⁹ See Draft Consolidated Negotiating Text of 21 April 2011, WTO doc. TN/TF/W/165/Rev.8.

- Chinese arguments before the WTO panel have emphasized broader sustainable development objectives.
- There have been and remain significant environmental problems related to raw materials production.

Intellectual property rights (IPR): The environmental assessment will focus on how to approach IPR under the FTA for the following reasons:

- Norway and China have had similar positions of as regards the interaction between IPR, patents in particular, and biodiversity issues.
- The IPR issue has become stalled in WTO negotiations, and there is a need to move ahead in bilateral negotiations.
- Chinese FTAs contain clauses that are of interest from a Norwegian perspective.

Case studies

To illustrate the general points set out in the section on regulatory and policy effects we discuss two case studies: *clean energy*, and *CCS*. These case studies integrate rules concerning goods, services and investment. The reasons for focusing on these cases are the following:

- Clean energy and CCS are environmentally-friendly technologies that involve goods trade, services trade, investment and R&D. An investment may entail purchase of equipment (goods) with certain environmental characteristics. Based on the investment, R&D is performed in a pilot phase (in terms of adapting technology to a new environment and developing new technologies), and environmental services may be offered. Services are also essential in the construction phase. It is relevant to discuss how an FTA may serve to fast-track and facilitate environmentally-friendly technologies here.
- China is the largest hydroelectric producer in the world, and Norway is the largest in Europe. China is the world's largest wind-power producer (in terms of installed capacity), and Norway has considerable wind-power resources. Hence there is a potential for further trade, investment and R&D in the area of clean energy.
- Norway has an ambitious programme for developing pilot CCS technology. China has indicated an interest in experimenting with CCS on coal-fired power plants and industrial facilities. Hence there is a potential for further trade and investment in the area of CCS.

8. Environmental impacts of the free trade scenario

In this chapter we examine the environmental impacts of the free trade scenario. After some remarks on the literature and the ‘pollution haven’ and ‘race to the bottom’ hypotheses we discuss possible environmental impacts on fish farming in Norway if consumption of Norwegian fish increases in China. This is followed by a discussion of the environmental impacts of greater textile production in China, and then of increased liberalization of mining services. Finally we discuss policy and regulatory impacts.

8.1 The ‘pollution haven’ and ‘race to the bottom’ hypotheses

The environmental impacts of free trade have attracted massive interest from civil society and the research community. According to the ‘pollution haven hypothesis’, international investors and businesses set up polluting factories in countries with weak environmental legislation and/or enforcement, and then export the goods back to the rich world. A search of the phrase ‘pollution haven hypothesis’ on Google Scholar November 7, 2011 returned 1810 hits.

The empirical literature on ‘pollution havens’ has, however, failed to find significant effects. A key reference in the field, by Norwegian professor Gunnar Eskeland with Ann Harrison (2003), concludes: ‘Although we find some evidence that foreign investors locate in sectors with high levels of air pollution, the evidence is weak at best. We then examine whether foreign firms pollute less than their peers. We find that foreign plants are significantly more energy efficient and use cleaner types of energy.’ The finding that foreign plants are more energy efficient has been explained by the fact that the constituency of foreign firms is foreign. In ‘The case of the missing pollution haven hypothesis’ (Millimet and List, 2004), the authors write that ‘while neoclassical theory and conventional wisdom both surmise that local economies will suffer deleterious effects from stricter environmental regulations, empirical studies have largely failed to validate such claims.’ Kearsley and Riddell (2010) conclude: ‘we estimate EKC’s for seven oft-studied pollutants and find little evidence that pollution havens play a significant role in shaping the EKC’ (EKC=Environmental Kuznets curve). MacDermott (2009) is more sympathetic to the pollution haven hypothesis, and concludes: ‘use of pollution emissions as a proxy for environmental stringency shows evidence in support of the pollution-haven hypothesis’. This paper was published in a little-known journal, however.

Some papers focus specifically on Chinese environmental impacts from trade liberalization (Vennemo et al., 2008; He, 2006; Shen, 2008). These contributions find small impacts: emissions and discharges of some compounds fall, and they rise for others. One explanation can be that these papers tend to see trade liberalization as an issue of shifting production, and not (merely) increased production.

In a series of important papers, Glen Peters of Cicero and co-authors have focused on the factor content of trade: to what extent international trade embodies, e.g., CO₂. They conclude that international trade does indeed entail significant amounts of CO₂, with developing countries exporting CO₂ and the developed countries importing it (see Peters et al., 2011). These papers could be taken to support the pollution haven hypothesis. One difference between the contributions of Peters et al. and the others is that the latter discuss the impacts of either trade liberalization or stricter environmental regulation – they focus on the impacts of a change in the regulatory environment. By contrast, Peters et al. focus on the situation as it is and could perhaps be said to have autarky as the implicit alternative. Moreover, in today's situation, trade is imbalanced. It may be that the impacts of a change in e.g., tariffs and non-tariff barriers such as those of an FTA are fairly small, especially if one considers balanced trade changes, but that the imbalanced basis or reference involves large movements in e.g., CO₂. At this point that must remain a hypothesis, however. More research is needed to reconcile the seemingly small impacts on the margin and the seemingly large impacts in total.

How relevant is the pollution haven hypothesis for a Sino-Norwegian FTA? We find no obvious candidates for moving production from Norway to China in the interest of exporting to Norway. Also, as seen in previous chapters, the tariffs and barriers to exports from China to Norway are few even before the FTA. In addition, investor rights are fairly well protected. More study is needed of the impacts of removing remaining tariffs and barriers, e.g., on textiles; and on securing investor rights. We will look into this below, but one probably should not expect too much from the impacts.

The term 'race to the bottom' is used to describe competition to relax environmental standards, or, less gravely, a 'regulatory chill', i.e. the avoidance of new or stricter environmental requirements. Such a 'race' may develop in response to relocation to pollution havens. However, given that the pollution haven hypothesis enjoys limited empirical support, the threat of a race to the bottom may also be limited.

The race to the bottom hypothesis has been studied, e.g., in the context of the NAFTA (North American Free Trade Agreement) agreement between Canada, Mexico and the USA (CEC 2006). In the case of US environmental policies, supporting evidence was not found. The CEC assessment emphasizes the need for offsetting policy interventions to reduce the risk of a race to the bottom. The assessment discusses how Canada entertained doubts about its commitment to the Kyoto Protocol, fearing it would be at a disadvantage compared to the USA, which has not ratified the Protocol.

The CEC Impact Assessment found that the institutions created by and legal measures enforced through NAFTA facilitated better environmental performance. Mexican businesses exporting to the other NAFTA countries implemented more environmental management actions – the so-called 'pull' effect. The USA is Mexico's largest trading partner, so it is

not unnatural that US consumers' opinion of Mexican goods and services should affect Mexican export businesses.

In terms of the Sino-Norwegian FTA, we find it far-fetched that *traditional* environmental regulation in Norway would be relaxed because of competition with China. The one area where competition with China is an issue is CO₂ regulation, including levies and quotas. In recent years Norwegian industry has argued that strict CO₂ regulation of firms would lead to 'leakage' out of Norway and into the USA, China and other countries with lax CO₂ regulation. This argument has convinced the Norwegian authorities to grant certain exceptions and support to industry.

8.2 Case study 1 – Export of fish from Norway to China

General

As concluded in the chapter on scoping, 'fish' is an environmentally important category of export from Norway that is likely to be stimulated by a free trade agreement between Norway and China. In 2011 the production of farmed salmon was capped because of the problem of salmon lice (see below). If this cap continues, an FTA will of course have only small impacts on Norwegian fish farming. The situation is to be reassessed in 2012. Here we assume that by the time the impacts of Sino-Norwegian FTA are in full play, perhaps ten years from now, the cap on production will have been lifted.

While farmed salmon in general is a big export item for Norway within the category 'fish and marine life', this is not the case when it comes to export to China (Table 8.1). Salmon contributes up 22% of the export value fish to China, but stands for more than 50% of export value of fish in general. Hence there seems to be a potential for expanding the export of farmed salmon to China. In the following we focus our analysis on the export of farmed salmon to China. Where necessary we distinguish between fresh and chilled salmon on the one hand, and frozen salmon on the other.

Table 8.1 **Export of fish from Norway to China, and Norway to the world, NOK million**

Item	Export to China	Export in total
Farmed salmon with head: fresh and chilled	400	23,200
Farmed salmon, frozen	80	1600
Frozen cod	1000	9800
Frozen mackerel etc.	650	
Total	2200	43,000 [2009 data]

Note: 2010 data; source: Statistics Norway.

The life-cycle of farmed salmon

Before ending up on Chinese dinner tables, a salmon has undergone several stages in its life-cycle, each involving environmental challenges in some form. Table 8.2 indicates the stages in the life-cycle of salmon. We also note how the weight decreases from 2.8 kg industrial fish feed to 1 kg gutted salmon with head, which is the main export item to China. The rest of this section explains these matters further.

Table 8.2 Stages of the salmon life-cycle

Stage	Weight, kg.	Environmental concerns
Amount of industrial fish required	2.78	Over-exploitation of wild fish stocks
Amount of feed required	1.37	Discharge of nutrients
Live salmon required for 1 kg of gutted salmon with head	1.25	Escapees and genetic alteration of wild salmon Fish lice
Salmon ready for slaughter	1.19	
Gutted salmon with head	1.00	Transport emissions

Environmental concerns related to production and export of farmed salmon

The Institute of Marine Research in Norway has recently carried out an environmental risk assessment of salmon fish farming in Norway (Havforskningsinstituttet, 2010). It concludes that the two most important environmental risks of salmon farming are the risk of (more) wild fish being infected by salmon lice, and genetic alteration of the local stocks of wild salmon due to interbreeding with escaped farmed fish. The assessment also considers the discharge of nutrients and organic material, but considers this a comparatively minor problem.

In their opinion provided to the public hearing of the methodology report from this project, Friends of the Earth Norway emphasizes as an additional important environmental issue the overexploitation of wild fish as sources of fish feed. In some contrast to the Institute of Marine Research, Friends of the Earth is of the opinion that discharge of nutrients and organic material currently represents another important environmental risk.

Chilled and fresh fish from Norway to China will have to be transported by air, which is likely to entail high greenhouse gas emissions. The process of farming, including the effort of catching the feed, also leads to GHG emissions. Hence there are at least four environmental and resource impacts of fish farming and export that should be examined:

- Infectious salmon lice (including impacts of antibiotics to combat the problem)
- Escapee farmed salmon and risk of interbreeding with wild fish
- Overexploitation of wild fish used as fish feed
- Greenhouse gas emissions

Some would also include discharge of nutrients in such a list. Unfortunately we lack data in that in this research.

Methodology

In accordance with our report on methodology (Fauchald and Vennemo, 2011) we pursue the analysis of environmental impacts of farmed salmon by means of a mixed partial equilibrium and life-cycle analysis. That is, we employ partial equilibrium methods to discuss the possible impacts of an FTA on the export volumes of salmon. We employ life-cycle analysis to discuss the environmental impacts of greater export of salmon. Finally we employ economic general equilibrium reasoning to discuss the impacts induced by substitution effects, e.g., when Norwegian salmon substitutes for meat or for Chilean salmon in China.

Possible impact on the value of exported Norwegian salmon

In this work we assume that a free trade agreement between China and Norway would reduce the import tariff in China from about 10%, to zero. The reduction is likely to take place over a period of some years, perhaps ten years. We ignore the time-lag here.

In addition to the tariff decrease, a free trade agreement might reduce other forms of regulation during customs that could lower the generalized cost of trade. To illustrate we suggest a decrease of five percentage points. All in all, it may be possible for the terms of trade for Norwegian salmon exported to China to improve by 15%.

Norway's current export of salmon to China stands at about NOK 500 million (see Table 8.1). For comparison, export to Japan is about 700 million. Japan is a wealthier country than China, but it is also much smaller in population, with a GDP slightly less than that of China.

Both the comparison with general exports above and comparison with Japan indicate a potential for significantly increasing the export of salmon to China. However, it would be erroneous to attribute the full difference between Japan and China to the import tariff and other barriers in China.

To distil the impact of reductions in tariffs and other barriers, economists use the concept of price elasticity. This indicates by what percentage the consumption of a good increases when its price decreases by 1%. A dividing line is drawn at a price elasticity of minus one. It is in fact more common to work in terms of the absolute value of the price elasticity. A price elasticity of one in absolute value means that consumption of a good increases by 1% when its price falls by 1%. This then implies that the amount of money devoted to the good is the same before and after a change in price.

Goods with a price elasticity lower than one in absolute value are called 'necessary goods' in economics. With necessary goods, the amount of money devoted to the good increases when its price increases – so a necessary good takes up a larger share of the budget when its price

increases. Goods with a price elasticity higher than one in absolute value have the opposite property, and the budget devoted to such a good falls when its price rises. Such goods are termed ‘luxury goods’.

There may in fact be several explanations why a good has a price elasticity higher than one in absolute value. One is the luxury explanation; this is a good you don’t really need and you are willing to sacrifice if it becomes more expensive. Or, perhaps there exist close substitutes for the good. Then it can make sense to switch over to the substitute if the price of the original good increases.

Our conjecture is that the case of Norwegian salmon in China satisfies both conditions for having a price elasticity higher than one. For one thing it is still a luxury good that is sold to the upper middle class in China, to restaurants, sushi bars, etc. This characteristic calls for a fairly high price elasticity. Secondly, there are good substitutes available – Chilean salmon, quality meat, etc. This characteristic also calls for a fairly high price elasticity.

In this work we suggest a price elasticity of 1.5 in absolute value to characterize Norwegian salmon in the Chinese market. A price elasticity of 1.5 is common for a typical luxury good. Combined with the assumption of 15% reduction in price and on the basis of NOK 500 million in export value, the estimated rise in export is calculated to NOK 125 million.

An increase of NOK 125 million brings total exports to 625 million, which is lower than current sales to Japan, but significantly closer to current sales to Japan than today. Remaining differences could be due to cultural factors, etc.

If over time the quantity sold to China increases in the baseline scenario, a given percentage increase will imply a corresponding increase in the quantity of additional sales. We have not ventured into a discussion of this effect. This omission makes our estimate more conservative than it would otherwise have been.

Possible impact on the quantity of exported Norwegian salmon

A characteristic of life-cycle analysis is that the environmental characteristics of salmon are calculated per kg of fish. In order to bring this physical information into line with the value-based information of the trade statistics, we need to know the price of fish. The price is our conversion factor between the two sets of statistics. According to information from *seafood.no* the average export price for fresh or chilled salmon exported to China was NOK 31.30/kg. in 2010. The average for frozen salmon was slightly lower (NOK 29.40). Since most salmon is exported fresh and chilled, we use the rounded figure for fresh or chilled salmon: NOK 31.00 per kg.⁷⁰

⁷⁰ The trade statistics of Statistics Norway suggest a slightly higher price of NOK 41 /kg (export in value and quantity of HS03021201 Farmed salmon with head, fresh or chilled.)

Dividing NOK 125 million by 31 we obtain 4.032 million kg. 4.032 million kg equals 4032 tons. Hence this price suggests that as a consequence of an FTA, 4000 tons of salmon would be sold to China in addition to the quantity currently sold. As indicated, fish sold to China is mostly ‘gutted with head’, not filleted.

Possible impact on the quantity of live salmon

Having estimated the value and quantity of additional exported salmon, we now turn to the life-cycle study of environmental impacts. Recall that we focus on the environmental impacts described above. Except for CO₂, all of these impacts originate in the farming process. To calculate their magnitude we first need to estimate the quantity of *live* salmon required for each ton of salmon sold to China.

Our analysis indicates that 1.25 tons of live salmon are required to produce one ton of whole and gutted salmon for sale (Table 8.2 above). First, a considerable number of fish die, and some escape. We calculate that dead and escaped fish contribute 5% by weight.⁷¹ Escapees are the source of a significant environmental problem, see below. Second, a salmon is gutted before being ready for sale.⁷²

As this reasoning makes clear, 4000 tons of exported salmon corresponds to a much larger quantity of salmon that is fed and reared. We calculate that to export 4000 tons of salmon, 5500 tons of living fish are required. Losses during farming are included in this figure. Losses during transport are not included, but according to industry sources these are very low.

Escapees and the risk of interbreeding

The fact that some farmed salmon escapes and go on to interbreed with wild salmon is of major environmental concern. Figure 8.1 indicates that the amount of farmed fish in Norwegian rivers exceeds by far what is deemed the sustainable level.⁷³

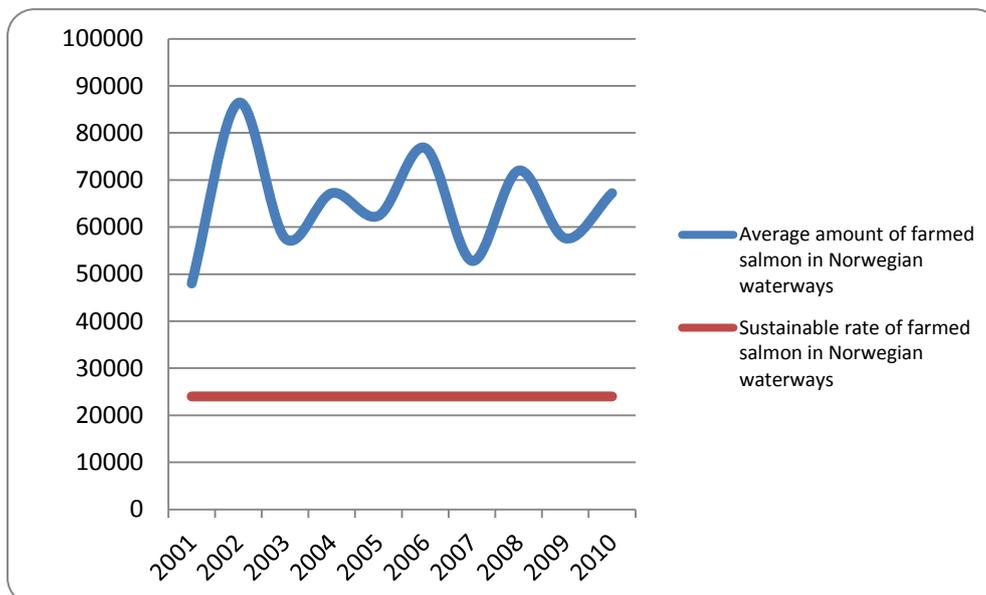
The effect of assuming a higher price is to assume a lower quantity and lower environmental impact. If the price is 41 instead of 31 the quantity is 3000 tons instead of 4000 tons (4 x 3 equals 3 x 4) and all environmental impacts are scaled down by a factor of 3:4.

⁷¹ This figure is based on information from Statistics Norway on the weight of fish production (930,000 tons) and information from the Directorate of Fishery in Norway on the number of lost fish during production (44 million). Finally, the report *Effektiv og bærekraftig arealbruk i havbruksnæringen – areal til begjær* (available at regjeringen.no) states in section 7.7 that ‘it is realistic to assume that the average size of the lost fish is about 1 kg.’ With this we have the weight of lost fish, which can be compared with the weight of produced fish, and the figure of 5% is obtained.

⁷² The source of information on the percentage weight lost during gutting is www.skretting.no. In the document ‘formler og beregninger’ it is stated (p. 4): ‘there is no absolute industry standard for how these units of weight are relative to each other, but it is common to use these rates of conversion: Round weight = 93% of live weight; gutted weight = 84% of live weight.’ We use 84% as our estimate.

⁷³ The sustainable level is estimated to be 5% of the stock of wild fish, i.e. the spawning stock of wild fish is able to accommodate 5% wild fish in the water.

Figure 8.1 Amount of farmed salmon in Norwegian waterways



Source: Authors

Against this background it is relevant to estimate the number of salmon that would be introduced into Norwegian waterways as a consequence of a Sino-Norwegian FTA. Starting off from our key figure of 4000 tons additional export and 5500 tons additional live salmon, it is possible to estimate the number of escapees.

Here we assume that the percentage share that escapes from ‘our’ 5500 tons equals the percentage that currently escapes. This methodology is likely to overestimate the future figure somewhat. The number of escapees has dropped dramatically in recent years, from an estimated 700,000 individuals in 2005 and 900,000 in 2006, to 255,000 individuals in 2010.⁷⁴ Meanwhile production has risen.

On the other hand the year-to-year variation in the number of escapees may be incidental, and we would not be comfortable applying a trend reduction to the percentage share of escapees. Similarly, we do not apply a trend to future production increases from the FTA as compared to the baseline.

A total of 930,000 tons of salmon was produced in 2010. If the 255,000 escapees are spread evenly in this total, the question becomes: how many escapees there will be if the quantity is 5500 tons?

The answer is 1510 escapees.

⁷⁴ These numbers do not correspond to figure 8.1. There, the indicator is ‘fish in waterways’, not ‘escaped fish’. Only one in five escaped fish actually reaches the waterway, see text below.

Not all the escaped fish will reach a river and get the chance to mix with wild fish. Comparing historical escapes with the numbers found in waterways, we estimate that an escapee has a 21% chance of reaching a river. With this information, we are able to estimate the annual number that actually reach the rivers: 315 individuals.

A total of 315 additional individuals may seem a small price to pay for increasing Norwegian salmon exports to China. On the other hand some would advocate zero tolerance towards this problem.

We repeat the assumptions behind the estimate of 315 additional individuals each year:

- The number of escapees is 255,000
- Escapees are spread evenly among the 930,000 tons of produced live fish
- Escaped fish in a river live for one year (and 21% of escapees reach a river)

Of course, in the case of an FTA between China and Norway, the actual number of escapees reaching a river is likely to deviate from the estimate here. The actual number will depend on the location of the fish farms that produce the additional fish, the precautions taken in these farms, accidents and chance events such as bad weather, etc. As noted, current trends indicate fewer escapees.

The assumption that 21% of escapees reach a river is also based on averaging. In practice the rate will depend on which river, which farm location, etc. Besides, the figures for the number of escapees and the number in rivers are uncertain estimates. On the other hand, even a 100% chance of reaching a river would imply only 1510 individuals, so the uncertainty in the figure of 21% may be low compared to the total.

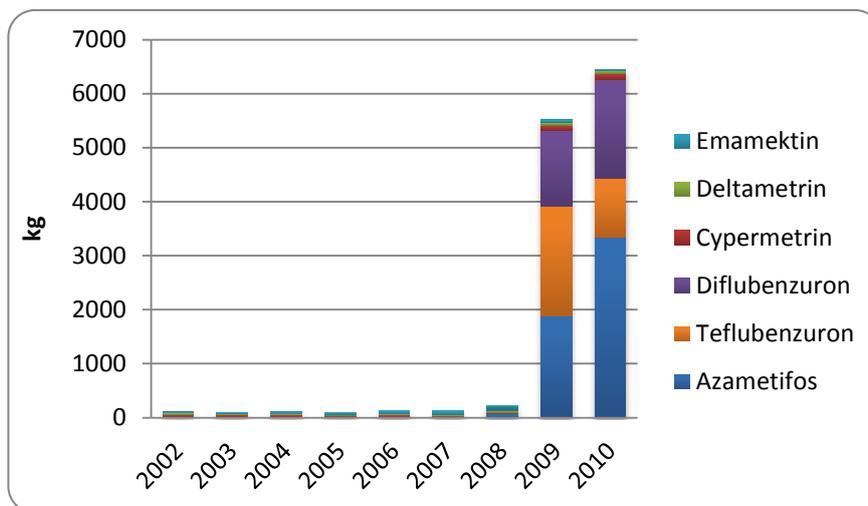
Salmon lice

The problem of salmon lice has become a major environmental and health concern in Norwegian salmon farming. Lice are a burden on wild fish in the farming areas and young wild fish going out to sea, and of course to the farmed fish. It is estimated that 4–5 lice per fish are enough to kill smolt and 9–11 prove fatal to a young salmon.

Although the amount of lice varies in the course of a the year and from year to year, it is estimated that the current population of salmon lice in Norway numbers 400 million individuals – which is eight times higher than the sustainable level of 50 million.

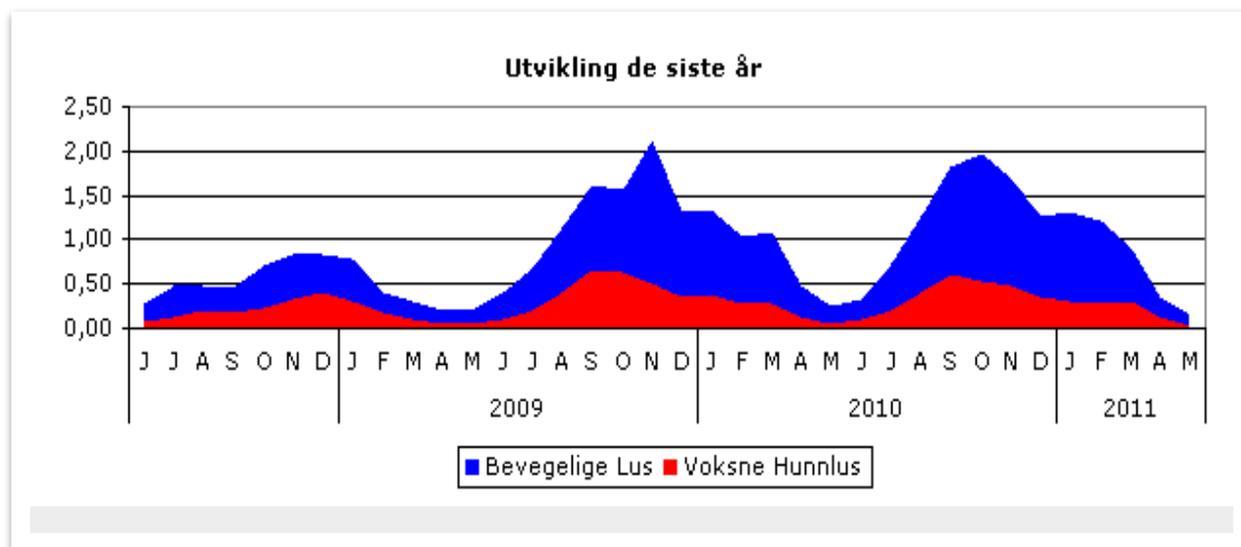
In order to reduce the number of salmon lice, large amounts of antibiotics have been applied over the last couple of years (figure 8.2). The long term impact of this application is not clear.

Figure 8.2 Sold amount of drugs to prevent sea lice



On this background it is relevant to estimate the number of additional lice that would be given breeding room if salmon production increases as a result of a Sino-Norwegian FTA. The average stock of lice, 400 million, may be compared to the average stock of live salmon in 2010, 355 million individuals. To obtain a rough indicator of lice per salmon we divide the two, and estimate that each salmon carries 1.125 lice. (In reality the number of lice per fish varies, as indicated; see figure 8.3.) Current regulations require fish-farmers to initiate ‘de-lousing’ programmes if the number of *female* lice per fish exceeds 0.5.

Figure 8.3 Development of sea lice per fish in recent years



Source: Lusedata.no

Recall that 5500 tons of live fish is needed for 4000 tons of gutted salmon with head. Given the average weight of fish at slaughter before gutting (5 kg) an additional 1.1 million fish will be farmed. Assuming this fish have no fewer and no more lice than the average, the number of additional lice induced by the FTA becomes 1.4 million.

Now, 1.4 million lice may seem low when compared to the 400-odd million lice in existence, but it would certainly add to the difficulty of reducing the total number of lice to 50 million. As in the case of escapees, some advocate zero tolerance towards salmon lice.

We repeat the assumptions behind our estimate of 1.4 million additional salmon lice:

- 1.25 salmon lice per fish
- Five kg slaughter weight of fish exported to China (1.1 million fish)

However, as noted above, the number of lice varies significantly from season to season and from year to year. For this and other reasons, the figure of 1.25 per fish is uncertain. If the actual number is twice that high and the number of farmed fish for China is 1.1 million as we have argued, then the additional number of lice becomes 2.8 million. Even this is small compared to the 400 million in existence, but if true it adds further to the difficulty of achieving a total of 50 million.

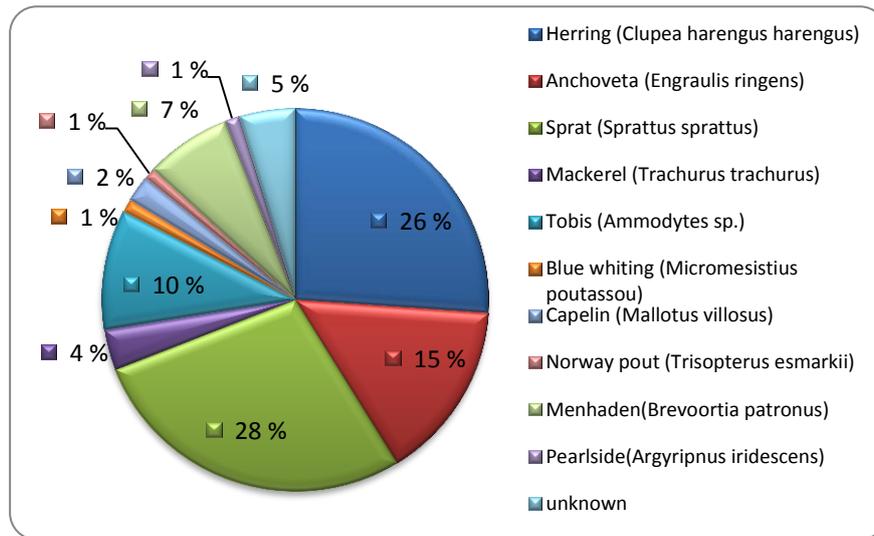
Salmon feed

We now turn to additional demand for feed that follows from the increase in fish rearing to cater for markets in China. Farmed salmon are fed a mix of fish oil, fish flour and plant-based feed. Over time the share of plant-based feed has increased, but it seems doubtful that this trend can continue forever. One kg of industrial fish will yield both fish oil and fish flour, but it is fish oil that is the limiting factor. Any leftover fish flour may be used to feed other fish, as well as poultry.

The industrial fish that go into the production of fish feed come from many sources. The contribution from each source changes over time, but in 2010, 28% came from sprat, 26% herring and 15% anchoveta, see figure 8.4. According to the FAO, sprat, herring and Pacific anchoveta are ‘fully exploited’ at present. Blue whiting, which gives 1% of the fish feed, is considered overexploited.

To calculate the additional strain on industrial fish resources from additional exports to China we first consider how much feed is required to produce a ton of live fish. This entity is known as the FCR ratio. We set it to 1.1,⁷⁵ Hence 6000 tons of feed is required to obtain 5500 tons of live salmon. Recall that 5500 tons of live salmon is the amount required to generate 4000 tons of exports to China.

⁷⁵ This figure is collected from the home page of Skretting, www.skretting.no. Another large Norwegian producer, Lerøy, publishes a higher FCR ratio.

Figure 8.4 Industrial fish in salmon feed 2010

To generate one ton of fish oil and flour requires two tons of live industrial fish.⁷⁶ Hence, 11,000 tons of live industrial fish are necessary to support 4000 tons of exports to China.

We use the 2010 data to spread this amount on the various kinds of fish available; see Table 8.3.

Table 8.3 Amount of industrial fish required for 4000 tons of Atlantic salmon, gutted with head

Industrial fish in salmon feed 2010	%	Tons
Herring (<i>Clupea harengus harengus</i>)	26	2 899
Anchoveta (<i>Engraulis ringens</i>)	15	1 677
Sprat (<i>Sprattus sprattus</i>)	28	3 099
Mackerel (<i>Trachurus trachurus</i>)	3	378
Tobis (<i>Ammodytes sp.</i>)	10	1 122
Blue whiting (<i>Micromesistius poutassou</i>)	1	122
Capelin (<i>Mallotus villosus</i>)	2	244
Norway pout (<i>Trisopterus esmarkii</i>)	1	111
Menhaden (<i>Brevoortia patronus</i>)	7	800
Pearlside (<i>Argyripnus iridescens</i>)	1	133
Unknown	5	522
Sum	101	11 106

Source: Authors.

⁷⁶ The figure is based on information from Skretting, www.skretting.no. Skretting states that 14.7% of fish feed is fish oil, and that 12.5 kg fish yield 1 kg fish oil.

Of this catch, it is the 120 tons of blue whiting that according to the FAO give the greatest reason for concern.

We repeat our underlying assumptions:

- An FCR ratio of 1.1
- 14.8% fish oil in fish feed, and 12.5 kg fish needed for 1 kg fish oil
- Distribution of industrial fish as of 2010

It is of course not given that the fish produced as a result of a Sino-Norwegian FTA will match exactly these requirements. The FCR ratio varies between producers, and producers are working to bring it down in order to save costs. The amount of fish oil in the feed may also decrease in the future. And most importantly, global fisheries may stop fishing blue whiting, without significant deterioration of the quality of fish feed. Should sprat and herring move from fully exploited to over-exploited, the environmental burden of the fish feed will be higher.

Discharges: CO₂

A report by Sintef (2009) has recently analysed the impacts on CO₂ emissions of producing and exporting salmon to China. As far as we can judge, the assumptions behind their analysis are quite similar to those we employ. These are assumptions as to the amount of live fish needed for a ton of gutted salmon with head, the amounts of feed and its composition as regards different stocks of industrial fish, and so on.

However, it is the process of transport that generates by far the greatest CO₂ emissions (see Table 8.4). Fresh or chilled salmon require air freight, and according to the Sintef analysis one ton of fish generates almost 11 tons of CO₂ emissions in the course of being flown from Norway to China. By contrast, transport by sea generates one ton of CO₂.⁷⁷ Assembly of the feed also generates substantial CO₂ emissions, almost three tons per one ton of fish for sale.

Table 8.4 CO₂ emissions (tons) per ton of salmon exported to China

	Total	Feed production	Aquaculture excl. feed production	Processing	Product transport	Transport packaging	Means of transport, and distance
Salmon fresh gutted to China	13.86	2.72	0.14	0.03	10.83	0.14	Airfreight Boeing 8380 km
Salmon frozen to Shanghai	4.20	2.72	0.14	0.05	1.18	0.11	Large container ship 19461 km

⁷⁷ The analysis assumes a distance of 19,461 km. The distance from Oslo to Shanghai through the Suez Canal is much less, 11,030 km. Hence emissions via sea transport are lower for ships that can use the Suez Canal.

Above we estimated that 4000 tons of additional salmon would be exported to China as a consequence of an FTA. About 80% of current exports to China are fresh and chilled salmon, whereas 20% is frozen. These percentages are given in terms of value, but the export prices of fresh and frozen salmon are very similar.

We apply the 80/20 division to the 4000 tons and estimate that 3250 tons are transported by air freight. This and the production involved generate 44,000 tons of additional CO₂. The remaining 800 tons are transported by sea. This and the production process involved generate 3350 tons of CO₂. The total is 48,000 tons of additional CO₂. Since most of this CO₂ is generated during transport it constitutes a net addition CO₂ emissions. That is, even if one considers moving production from one location to another (consumption unchanged) this CO₂ is additional. However, if one is of the opinion that Norwegian salmon can substitute for, e.g., airborne Chilean salmon, the net impact on CO₂ may in fact be a reduction.

Substitution impacts in consumption

Norwegian salmon likely to substitute for Scottish salmon, fine meat, and similar products. (Note the points made in Box 8.1.) This substitution will in general reduce the environmental impact of higher production of Norwegian salmon. Why? Because Scottish salmon production also has environmental issues, and may be flown over a similar distance as the Norwegian product. We may assume that fine meat, another possible alternative to Norwegian salmon, will also involve environmental issues, like discharges of organic material from manure and from the fertilizer used to produce feed; and from GHG emissions related to the same processes. For this project we have not properly in depth studied the environmental impacts of Scottish salmon, fine meat or other luxury food alternatives to Norwegian salmon. However, these conjectures illustrate a point made earlier: that once general equilibrium effects are taken into account, the environmental implications of free trade often diminish compared to their life-cycle counterparts. But it may also be the case that Norwegian salmon is used to substitute for something that is more environmentally-friendly, such as organically grown vegetables. To the extent that occurs, the impacts from the life-cycle analysis are valid in the broader analysis and may actually be reinforced by the removal of the health impacts of vegetables.

Box 8.1 An illustration of substitution in the case of salmon consumption in China

The Telegraph

Scottish salmon farmers set to clean up after China's Nobel dispute with Norway

China's dispute with Norway over the awarding of the Nobel prize to dissident Liu Xiaobo has produced an unlikely winner - the Scottish salmon.



Exports of Norwegian fjord-farmed salmon to China have plummeted by 70pc in the first four months of this year, opening the door for the Scottish producers. Photo: PA

By Peter Foster, Beijing
12:02PM BST 10 May 2011

Norway's fall from grace has provided a chance for Scottish salmon farmers to break into a market that had been dominated for years by the Scandinavian country, which provides 90pc of the salmon eaten in China, according to the state-backed Global Times newspaper.

Exports of Norwegian fjord-farmed salmon to China have plummeted by 70pc in the first four months of this year, while Scottish producers signed a landmark agreement in January to begin direct exports to China.

Norway has been in the diplomatic equivalent of the deep freeze since last October when the Norway-based Nobel Committee announced it was awarding the peace prize to Mr Liu, a pro-democracy campaigner currently serving an 11-year jail sentence.

Source: The Daily Telegraph, May 10, 2011

Summary

Based on the combined partial equilibrium–life-cycle analysis we have found the following average impacts of greater export of salmon from Norway to China resulting from an FTA:

- 300 additional farmed fish reaching waterways
- 1.4 million additional fish lice
- 11,000 tons additional fish catch, of which 122 tons over-exploited blue whiting
- 48,000 tons additional CO₂.

In addition, discharges of nutrients may be a problem, but we have not delved into the empirical consequences in this research.

The figures given in the bulleted text above are in a sense captured by the method used to derive them: They are average figures, they do not reflect the consequences of altered practice, nor do they consider substitution impacts in consumption and production. For instance, if Norwegian salmon exports as used as a substitute for Scottish salmon exports the *global* environmental impacts may be lower than the *national* problems for Norway. All the same, the life-cycle methodology we have used here is a state-of-the-art technique in environmental impact assessment, and within Norway the figures may provide a useful indication of the size of the potential environmental problem.

8.3 Case study 2 – Export of clothing from China to Norway⁷⁸

China is the largest cotton producer and the biggest producer and exporter of cotton textiles and apparel products in the world. Following China's access to WTO and the elimination of tariff-rate quotas on textiles, Chinese textile exports have expanded rapidly, stabilizing at a high level in recent years (table 8.5).

Table 8.5 Chinese exports and imports of textiles and textile articles, USD billion

	2007	2008	2009
Exports	165.8	179.7	161.4
Imports	25.4	25.0	21.8

Source: China Statistical Yearbook 2009, 2010.

Cotton textile is estimated to make up around one third of the value of products exported from China, i.e. USD 47 billion. The Chinese Association for Textile Industry has estimated that China produced 5.5 billion meters of cotton textile cloth in 2005. The cotton cloth industry occupies an important position in the national economy and provides the means of livelihood for around 4.5 million Chinese.

The general strength of Chinese textile export can be seen from the trade figures with Norway. Textiles and textile products represent the biggest category of export from China to Norway. The Feasibility Study notes that pullovers/cardigans, cotton sweaters and women's cotton trousers are the most important textile articles exported.

We have established in the free trade scenario that Norwegian import tariffs on textiles and textile products probably will be phased out. This is likely to increase the export of textiles and textile products, resulting in

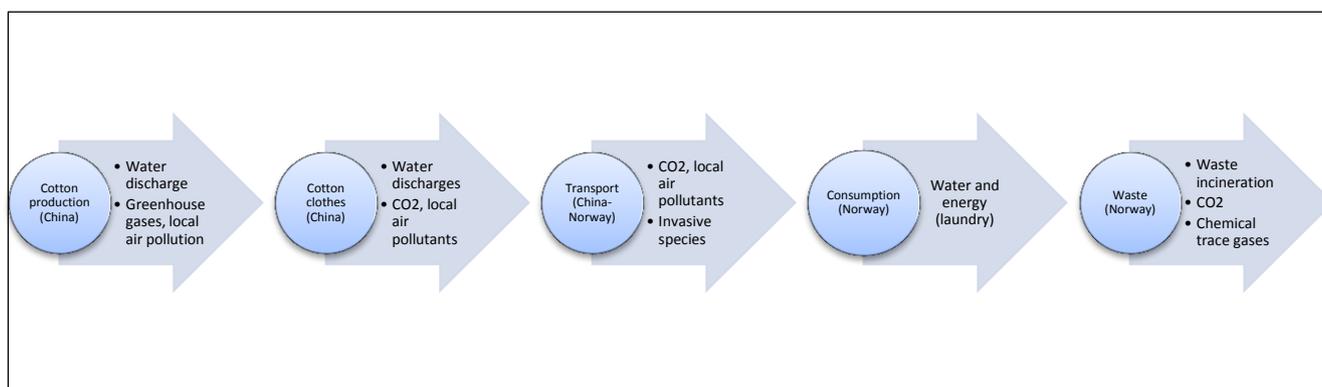
⁷⁸ Parts of this section are based on ECON: Environmental consequences of a Norwegian-Chinese Free Trade Agreement, ECON Report no. 2008-148. Unless otherwise noted, data are from this source.

greater Chinese production and lower apparel costs for Norwegian consumers. Remaining Norwegian suppliers could be threatened, but it could perhaps also bring new opportunities. The Norwegian textile industry has already basically shifted from producing the kind of low-cost apparel imported from China to high-value apparel sectors, and relaxed trade barriers could provide opportunities for greater two-way trade in textiles and apparel products.

The cotton life-cycle

Among the textile products exported from China to Norway, we use cotton cloth/clothing as an example of possible environmental impact. The life-cycle here consists of multiple elements with partly different environmental challenges. The elements are summarized in the 5 steps shown in Figure 8.5:

Figure 8.5 Elements of the cotton production cycle



Cotton production is the process of producing cotton from seeds to lint cotton in a season-long period. In the growing process, this production requires water, chemicals, electricity and machinery. Carbon dioxide, local air pollutants, ammonia and nitrogen can be released to air and water from the application of chemical fertilizers and pesticides. Generally speaking, Chinese agriculture consumes more fertilizer relative to production than in most other countries today. ‘Cotton clothes’ (or clothing) is the process of spinning and dyeing cotton to become items of clothing, usually with some chemical fibre mixed in. Electricity and water are consumed in the process; chemical wastes are discharged to water and GHGs and local pollutants to air. Transport from China to Norway requires consumes oil for shipping. The consumption process of cotton cloth/clothing in Norway consumes electricity and water, mainly during laundry. Finally, disposal of waste cotton cloth/clothing at the end of the life-cycle in Norway consumes energy during collection and preparation for incineration. Incineration in Norway produces commercial energy, but at the expense of emissions to air.

Quantifying the increase in Chinese exports of cotton textiles

Exports of textiles and textile products from China amounted to NOK 7.2 billion in 2010. Since the major textile products exported to Norway

seem to be made of cotton, we assume here for simplicity that all Chinese textile export to Norway consists of cotton.

The average import tariff in Norway is 8.4%⁷⁹ (see Fauchald and Vennemo, 2011). Applying a price elasticity of 0.5 we estimate that Chinese export to Norway increases $7.2 * 0.084 * 0.5 = 0.300$ billion NOK if tariffs are eliminated and reference quantities are as of 2010.

Environmental life-cycle impacts of increased exports of textiles from China

One problem in attempting to estimate the life-cycle environmental impacts of higher exports of cotton textiles from China to Norway is that available documentation on life-cycle impacts refers to the production of one (million) kg of textiles, whereas the trade statistics refer to the production of one (million) yuan of textiles. However, Norwegian trade statistics publish both quantity and value data. Summarizing the total quantities and values over HS-codes 61-67 (which contain the textile *articles*), we get an average price of NOK 132 /kg. As a cross-check we estimate the average price of the main import article, namely cotton pullovers/cardigans. The average price of these items is NOK 124/kg, so we have decided to apply a price of NOK 130 /kg. This price is our conversion factor between value-based trade statistics and quantity-based life-cycle analysis.

Using a factor of 130, the estimated increase in value of NOK 300 million emerges as equivalent to a 2.3 million kg increase in quantity, or 23,000 tons.

Carbon footprint

The carbon footprint of 1 kg of cotton cloth is given in Table 8.6; see ECON (2008) for the derivation:

Table 8.6 The life-cycle carbon footprint

Life-cycle Unit	Kilo CO₂-e/kilo	Tonnes CO₂-e from 23,000 tonnes textiles
Cotton production in China	16.1	370,000
Cotton clothing production in China	2.8	64,000
Transportation from China to Norway	0.2	4,600
Consumption in Norway	2.7	62,100
Waste	0.0	
Sum	21.8	501,400

According to this analysis, the increase in Chinese exports of textiles may lead to as much as half a million tons of additional GHG emissions. It is important to realize that this is a carbon footprint assuming no supply-side constraints or substitution in demand. The life-cycle impact indicated here is simply a mechanistic response to the increase in final demand for clothing.

⁷⁹ MFN, average.

Almost all the rise in GHG emissions is estimated to occur during cotton production. Cotton production in China is carried out in many ways. In remote areas, some farmers still rely on traditional farming systems, using only small quantities of oil and electricity, and larger quantities of human and animal labour. In some other areas, such as the Northern Xinjiang Autonomous Region, a more energy-intensive farming system has developed.

About one third of Chinese cotton production takes place in the Xinjiang Autonomous Region, with the remainder carried out in central and eastern part of China. Textile factories in coastal areas increasingly use imported cotton instead of domestically produced cotton in their production. Most often the cotton is imported from United States, the Commonwealth of Independent States (Uzbekistan in particular), India and Pakistan and even from African countries. Hence, the figures in Table 8.6 represent an underlying diversity of production technologies and trade in cotton with other countries. Still, we get an indication of the relative magnitudes involved in textile production.

Economic responses, reactions and rebound effects

An increase in exports of some commodity, in this case textiles, and associated increased production of everything that goes into the production of this commodity, will rarely be the end state of the economic response. In ECON (2008) the relation between partial and full impacts of a Chinese increase in production of textiles is discussed. It is noted that the economy cannot use more labour or capital than is available. Nor can it run down (or up, for that matter) the current account. On this basis ECON (2008) follows the economic flows in a Computable General Equilibrium exercise:

...the initial increase in exports to Norway is about 450 million Yuan, or 437 million to be precise⁸⁰. However, the macroeconomic increase in *all* export of textile & apparel from China is 250 million Yuan. This is of course a much lower figure. In other words, export to other countries falls. The reason textile export to other countries falls is that the stimuli provided by increased import demand from Norway creates an upwards pressure on wages and income in (the textile sector of) China. The upward pressure is the result of increased competition for resources of production when additional demand from Norway is factored in. The pressure is of course extremely small, but all figures are small in this marginal exercise and the pressure on wages and income has a considerable *relative* impact. The macroeconomic consequence of the pressure on wages and income is to increase costs of production and reduce ordinary exports of textile & apparel. This is how the economy makes room in the current account for the export stimulus to Norway.

⁸⁰ Note that this figure is very similar to the 300 million we estimated above for the present report.

The macroeconomic effect reduces exports of textiles & apparel from 437 million to 250 million. By the time the increase has filtered through to total export of *all* goods and services the initial increase is capped considerably once more. The total increase in export is only 23 million Yuan. The reason is that export from other sectors than textile & apparel reacts in a similar pattern to export of textile & apparel: This export falls back and modifies the initial export increase.

To illustrate this point the table below (Table 8.7) is presented in ECON (2008). It distinguishes between the direct, embodied and economy-wide impacts of increasing exports of textiles and apparel from China to Norway. The direct impact is similar to the impact denoted ‘cotton clothing production’ in Table 8.6 above. It calculates impacts in the clothing production sector. The embodied impact equals the direct impact plus impacts further up the chain of production. The embodied impact equals the sum of clothing production and cotton production in Table 8.6 above. Both analyses find the embodied impact to be about ten times the direct impact.

Perhaps the most interesting entry in Table 8.7 concerns the economy-wide impact. This includes the embodied impact, but it also includes other impacts in the economy. These impacts are negative (lower pollution) since other sectors contract in order to make room for greater export of textile and textile products. The economy-wide impact falls back to a magnitude that is lower than the initial, direct impact.

One may say that the economy-wide impact shows a generalized rebound effect, collecting all the economy’s responses to the initial change. The details of the rebound effect can always be discussed, but the general message from economy-wide analysis is that it is quite significant.

All impacts discussed so far have been on the Chinese side. On the Norwegian side there is also a considerable rebound effect. Most of the Norwegian impact originates from the electricity used to operate washing machines for laundry. On the margin this electricity is carbon-intensive since Norway belongs to a joint European electricity market. On the other hand, electricity production in Europe is subject to the Emissions Trading System, which caps overall carbon emissions. This implies that a stimulus to higher emissions, e.g., because demand from washing machines increases, is counteracted by lower emissions elsewhere in Europe.

Table 8.7 Impacts of increasing textile & apparel exports from China to Norway

Pollutant	Direct impact	Embodied impact	Economy-wide impact
CO ₂	22	207	7
SO ₂	0.12	82	0.04
COD (chemical oxygen demand)	0.17	41	0.02

Note: Increased textile & apparel export to Norway is 437 million Yuan. Unit for impact is tons/Million Yuan in increased textile & apparel export to Norway.

Discharges to water

Agriculture and the textile industry are two of the most water-resource consuming sectors in China. According to Shen (2006) the textile industry discharged 1.72 billion tons of wastewater in 2005 and represented 7 per cent of total industrial effluent, which made it the fifth most polluting industry in the country. Its COD (chemical oxygen demand) discharge was the fourth largest in the country and represented 6.05 per cent of total COD emissions.

The production-related environmental impacts of cotton cloth exports in 2005 are summarized in Table 8.8. The most significant environmental impact is wastewater effluent. To export 1 meter of cotton cloth, 31.4 kgs wastewater are discharged into the waterways.

Table 8.8 Cotton cloth export and direct environmental impacts in 2005

Exports and Emissions	Production	Increase compared with previous year	Increase %
Export amount (million meters)	5,496	795	14.46
Associated amount of COD (thousand tons)	140.4	20.696	14.74
Waste water discharge (million tons)	172.80	25.472	14.74
Water consumption (million tons)	216	27.825	12.88
Coal consumption (tce million tons)	2.43	0.358	14.73

Source: Shen (2006)

The vast water usage and wastewater discharges are alarming given China's current water stress. The unprecedented economic development has put great strains on natural resources, and water scarcity in North China has become one of the country's most pressing environmental problems. Between 1990 and 2002, there were more than 120,000 water-related conflicts reported to the Chinese Ministry of Water Resources.

A sobering picture is painted by Table 8.7 above. It indicates direct, embodied and economy-wide discharges to water of COD. Again the embodied impact is much higher than the direct impact, but the embodied addition and more is retracted by the economy-wide impact. According to this analysis, the impacts of increased textile exports on COD discharges are not excessively large.

Mitigating measures

The Chinese farmers could decrease the GHG emissions of the cotton production process somewhat by shifting towards lower fertilizer use and eventually to organic cotton farming. Similarly, if cotton cloth production could follow cleaner production technology with China's environmentally-friendly label certification, that also could reduce a certain amount of GHG emissions as well as water pollution. As for Norway, the mitigation measures available centre on more environmentally-friendly laundry processes, for example using detergent-free washing powder, and natural drying instead of electric tumble driers.

In order to reduce waste of fertilizer, measures could be introduced to internalize the environmental cost of fertilizers. Lower fertilizer use has several environmental benefits beside carbon emissions. For instance, it has been indicated that the recurring pollution of Tai Lake (Taihu) is due to mainly fertilizer pollution from farming. Another way of decreasing the emissions related to farming practices is to spread information regarding sustainable farming practices of cotton, including the use of fertilizers. Well-balanced fertilizer application is not only environmentally sustainable but also economically beneficial for farmers, so better information should be of interest to all parties.

An FTA could also be coupled with consumer communication measures in Norway aimed at limiting emissions related to cotton imports. This communication could be directed at laundry practices but also aimed at informing consumers of the environmental sustainability of the cotton clothing they choose to buy. By affecting demand, supply practices can also be altered. This kind of information is possible, as China has used the textile eco-label the 'Environmental Friendly Product Label' since 1996 and has reached an agreement on mutual recognition with White Swan Programme products. The authorities are also planning to develop a new label related to low-carbon product standards.

8.4 Case study 3 – Services associated with mining

There is growing interest in Norwegian mineral resources, related partly to Chinese restrictions and taxes on the export of certain minerals (see section 9.3 below; see also World Trade Report 2010 concerning the broader context). There are plans to re-open mines and establish new ones. The mining industry in Norway has essentially been privatized, and today most of the large export-oriented companies are owned, wholly or partly, by foreign investors. Approximately 61% of the industry's turnover is for export. Minerals not exported are mostly used as raw materials in the minerals industry (NGU and DM 2011: 11).

The mining industry is particularly important for the settlement and economic viability of rural areas of Norway. Norwegian municipalities have in their land-use plans set aside 2313 localities that may be used for mining activities (NGU and DM 2011: 9). The prospect of future mining activities has been a main element in the Norwegian Government's Strategy for the High North (2006, p. 65 in particular) and has been followed up through subsequent funding of mapping activities.⁸¹ From these perspectives, future mining activities are strategically important to the Norwegian government. The following four main challenges have been identified by the Norwegian authorities responsible for the industry: (1) the search for and exploitation of mineral resources; (2) research and development related to all stages of the life-cycle of minerals; (3) competition for qualified employees; (4) securing availability of mineral resources in land-use management (NGU and DM 2011: 34). The authorities do not list environmental issues among the main challenges.

Currently, the EU is heavily dependent on import of minerals (Farhorizon 2011: 3). Norway sees this as a business and development opportunity that fits well with its own strategic priorities (NGU and DM 2011: 34). According to an assessment made by the EU Commission:

The 14 raw materials listed below are critical because the risks of supply shortage and their impacts on the economy are higher compared with most of the other raw materials. Their high supply risk is mainly due to the fact that a high share of the worldwide production mainly comes from a handful of countries: China (antimony, fluorspar, gallium, germanium, graphite, indium, magnesium, rare earths, tungsten), Russia (platinum group metals), the Democratic Republic of Congo (cobalt, tantalum) and Brazil (niobium and tantalum).⁸²

According to the Geological Survey of Norway (NGU), 'China's dominance in many ore and mineral markets has led to a geopolitical situation where old reserves come to the forefront again, and new mapping starts. The EU looks upon Norway and the Barents Region as one of the most promising areas to secure Europe's supply of important ores and minerals.' (NGU 2011: 12). Moreover, global warming can be expected to facilitate Norwegian export of mineral resources to China through the North East Passage (Støre 2011: 17–19).

Norway adopted a new Minerals Act in 2009 which in essence continues and updates the prior legal regime, and facilitates future exploration and exploitation of the resources. A new Directorate of Mining under the Ministry of Trade and Industry has subsequently been established. The Geological Survey of Norway remains an agency under the Ministry, with the responsibility to generate and make available information, and carry out research. According to its instructions from the Ministry, the

⁸¹ NGU 2011 at 12: 'In 2010, the Norwegian government promised NGU NOK 100 million over the next four years to map the mineral resources in northern Norway.'

⁸² Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: *Tackling the Challenges in Commodity Markets and on Raw Materials*, COM(2011) 25 final at 21.

NGU is not to compete with private enterprises where such enterprises are able and fit to carry out the activities in question (Tildelingsbrev 2011: 2).

China's mining industry is complex. China is a leading country in the mining and minerals industries, and has significant world market shares in a broad range of mineral products. Much of its industry is export-oriented and advanced. Chinese enterprises have important and updated experience within many sub-sectors and in carrying out mining activities in the form of mode 4 of supply. Moreover, Chinese enterprises are outward-looking and have significant investment interests abroad.⁸³ In a report that has been approved by Chinese authorities, the OECD (2006: 12) concluded that: 'Stronger efforts are needed by the [Chinese] government to ensure that Chinese corporations operating overseas, particularly in such environmentally-sensitive industries as forest products and mining, are positive contributors to China's stated goal of building an international reputation for sound environmental management and sustainable development.'

The main environmental challenges facing the Norwegian mining industry relate to the deposit of waste matter, emissions from chemicals, and land-use issues. Of particular concern are emissions and waste that may harm the quality of freshwater resources and the marine environment. The Norwegian fjords are particularly vulnerable due to their fragile ecosystems and limited water exchange (Bjercke 2011). The Norwegian minerals industry and relevant research institutions have stated that future exploitation of many mineral resources will depend on being able to deposit waste and pollutants into the marine environment (Geonor 2010: 12, 42).

Based on the above information, including the many environmental challenges associated with the Chinese mining industry, we find the following consequences if Norway undertakes full commitments in the mining sector:

⁸³ See <http://www.chinamining.org/index.html>.

Table 8.9 Norway: Consequences of commitments regarding mining services

Mode of supply	Primary (economic / trade) consequence	Regulatory consequences	Environmental consequences
Mode 1 Cross-border supply	Increased outsourcing of analytical and surveillance related activities to China. Limitations on the activities of NGU due to the prohibition against competition with private service suppliers.	Increased difficulty of regulating and controlling the quality of the service.	Increased risk of harmful emissions from accidents and ordinary operation.
Mode 2 Consumption abroad	No significant effects.		
Mode 3 Commercial presence	Some increase in Chinese investments relative to investment from other countries. Chinese investors may have a preference for exporting raw materials in short supply to China.	The possibility that Chinese investors could challenge environmental requirements on the basis of investment protection rules included in the FTA or under the current BIT between China and Norway, e.g. non-discrimination in light of the potential need to strengthen environmental policy measures as the industry develops and environmental impacts accumulate (see also section 8.6 below).	Increase in foreign investment may lead to increased political pressure to exploit mineral resources that otherwise could have been left unexploited due to environmental concerns.
Mode 4 Presence of natural persons	Chinese enterprises will increase the use of Chinese workers on mining sites in Norway. This is particularly relevant due to the current lack of skilled work force in Norway.	While Norwegian legislation will apply to Chinese workers in Norway, significant compliance and enforcement issues are likely to arise.	Increased risk of harmful emissions from accidents and ordinary operation.

As indicated in Table 8.9, we foresee that Norwegian commitments in the mining sector are likely to have some negative regulatory and environmental impacts. In particular, we emphasize the challenges that such commitments may have for compliance and enforcement of Norwegian rules and standards. Possible mitigating measures include the following:

- The Norwegian schedule could list reservations under mode 1 and mode 4 of supply relating to national treatment, to ensure future possibilities of establishing quality control with Chinese service suppliers or Chinese services.
- The FTA could include arrangements to promote cooperation among Chinese and Norwegian authorities and industries in the mining and environmental sectors (see the box below).
- Measures could be taken to strengthen the capabilities of relevant Norwegian monitoring and enforcement authorities.

Box 8.2 Provision on Mining and Industrial Cooperation in China's FTA with Chile**Article 113**

1. The aims of cooperation in mining and industry sectors carried out in the mutual interest of the Parties and in compliance with their policies, will be:

- (a) to encourage, where appropriate, government agencies, research institutions, universities, private companies and other research organizations in each other's country to conclude direct arrangements in support of cooperative activities, programs, projects or joint ventures within the framework of this Agreement;
- (b) to focus cooperative activities towards sectors where mutual and complementary interests exist; and
- (c) to build on existing agreements and arrangements already in place between the Parties such as intergovernmental protocols, or association agreements between copper companies and corporations of the Parties.

2. Mining and Industrial cooperation may include work in, but not be limited to, the following areas:

- (a) bio-mining (mining using biotechnology procedures);
- (b) mining techniques, specially underground mining, and conventional metallurgy;
- (c) productivity in mining;
- (d) industrial robotics for mining and other sector applications;
- (e) informatics and telecommunication applications for mining and industrial plant production; and
- (f) software development for mining and industrial applications.

3. In pursuit of the objectives in Article 104, the Parties will encourage and facilitate, as appropriate, the following activities including, but not limited to:

- (a) exchange of information, documentation and institutional contacts in areas of interest;
- (b) mutual access to academic, industrial and entrepreneurial networks in the area of mining and industry;
- (c) identification of strategies, in consultation with universities and research centres, that encourage joint postgraduate studies, research visits and joint research projects;
- (d) exchange of scientists, researchers and technical experts;
- (e) promotion of public/private sector partnerships and joint ventures in the support of the development of innovative products and services specially related to productivity in the sector activities;
- (f) technology transfer in the areas mentioned in paragraph 2; and
- (g) designing of innovation technology models based in public/private cooperation and association ventures.

8.5 Mode 4 of supply of services

The free trade scenario assumes that Norway will undertake some commitments regarding mode 4 of supply. Nevertheless, we need to take into account the probability that Norway will maintain major reservations. There are currently three main horizontal reservations relating to mode 4 of supply in the Norwegian GATS schedule:

1. Establishment: General authorization procedures for acquisition: National treatment:
 - a. Foreign citizens residing in Norway who purchase or lease real property for housing, secondary residences and business activities without a concession are subject to the condition that the real property is acquired for their own personal use.
 - b. A concession can only be granted when it is not contrary to the public interest. An acquisition is normally judged on the impact it will have on future activity and employment in the company and the society as a whole. Legislation governing acquisitions has traditionally been liberally applied. It authorizes the setting of conditions, in a large majority of the cases involving over 1/3 of foreign ownership related to voting shares. Conditions are largely standardized. Two conditions are regarded as important and are stipulated in most cases: a majority of the board and its chairman must be Norwegian nationals and, the transactions between the Norwegian company and the foreign owner must be based on OECD's principle of arm's length prices.
2. All sectors: Subsidies: National treatment: Subsidies available to natural persons may be limited to Norwegian citizens.
3. All sectors: Movement of personnel:
 - a. Market access: Unbound, except for the temporary presence and without requiring compliance with an economic needs test of categories A and B below: A. Managers and executives, specialists as intra corporate transferees, provided that the service supplier is the corporation to which these are attached. Temporary entry, stay and work limited to a two year period. ... B. Business visitors. Temporary entry, stay and work limited to a three month period ...
 - b. National treatment: Unbound except for measures concerning the categories of natural persons referred to in the market access column.

The Norwegian Doha offer proposes the following amendments to these commitments:

1. Text to be changed to the following: A foreign citizen that purchases or leases real property as a secondary residence must apply for a concession if the citizen neither lives in Norway, nor has been living in Norway for at least five years.
2. Unchanged.

3. a. The following exception is added: C. Temporary presence of natural persons providing services without being employed by a juridical person who has commercial presence in Norway. Access is subject to the following conditions: ...⁸⁴

Almost all sectors include the following commitment under mode 4 for both market access and national treatment: 'Unbound except as indicated in the horizontal section'.

In order to further clarify the free trade scenario regarding mode 4 of supply, we note that Norway participated in a collective request regarding mode 4 in 2006. The request noted that:

All aforementioned interested Members are willing to consider, with due respect for their national policy objectives and the level of development of individual members' commitments in this mode of supply ...

It is recognized that specific commitments in Mode 4 are primarily horizontal. The coverage of categories is also narrow and restricted mainly to personnel related to commercial presence. The coverage of categories de-linked from commercial presence is extremely low. Substantial improvements in the coverage of such categories and substantial removal of the market access limitations for each of them is the key objective that would lead to improved market access in Mode 4.⁸⁵

The request concern two categories of service suppliers: *contractual service suppliers*, defined as: 'Employees of a foreign based company/partnership/firm who enter the territory of another WTO Member temporarily in order to perform a service pursuant to a contract(s) between their employer and a service consumer(s) in the territory of the other Member ...', and *independent professionals*, defined as: 'Natural persons who enter the territory of another WTO Member temporarily in order to perform a service pursuant to a contract(s) between them and any service consumer located in the territory of the other Member ...'.

According to the request, commitments would 'be restricted for provision of services at a level of complexity and specialty that require, at a minimum, a diploma or a university degree, or demonstrated experience'. For contractual service suppliers, commitments would be extended to 'personnel with requisite qualifications to fill positions responsible either for management of operations'. The service supplier would only be allowed to perform services related 'to the service activity which is the subject of the contract'. The requesters ask that 'Economic Needs Tests should be removed or substantially reduced. In case of the latter, they should be applied on a non-discriminatory basis.'

⁸⁴ WTO doc. TN/S/O/NOR/Rev.1.

⁸⁵ Collective Request, Mode 4 – Movement of Natural Persons (8 March 2006) sponsored by, *inter alia*, Norway, available at <http://www.regjeringen.no/upload/kilde/ud/nyh/2006/0078/ddd/pdfv/282784-mode4.pdf>

The requesters list a broad range of ‘sectors/sub-sectors of interest’. The following are of particular relevance here:

1. Architectural services (CPC 8671)
2. Engineering services (CPC 8672)
3. Integrated engineering services (CPC 8673)
4. Urban planning and landscape architectural services (CPC 8674)
5. Research and Development services (CPC 851 + 852 +853)
6. Management consulting services (CPC 865)
7. Services related to management consulting (CPC 866)
8. Technical testing & analysis services (CPC 8676)
9. Related scientific and technical consulting services(CPC 8675)
10. Maintenance and repair of equipment (not including maritime vessels, aircraft or other transport equipment) (CPC 633 + 8861–8866) [not requested in relation to independent professionals]
11. Specialty design services (CPC 87907)
12. Construction and related engineering services (CPC 511–518)
13. Environmental services (CPC 9401 + 9402 + 9403)

In the following we assume Norway will be ready to undertake commitments in accordance with the above request, provided that China reciprocates.

In our view, the primary consequence of such commitments will be that Chinese enterprises, including enterprises where Chinese investors own a large share, will expand their use of Chinese professionals in Norway. We also consider it likely that Norwegian enterprises as well as foreign-owned enterprises will expand their use of Chinese professionals, although to a lesser degree. We note that important parts of the Chinese work-force are becoming highly educated, although language remains a main obstacle. Foreign-language issues would be less important for Chinese enterprises. We also note that average salaries for Norwegian full-time employees in the private sector are the highest in Europe.⁸⁶ The above request states that: ‘Wage parity will not be a pre-condition of entry. However, this does not preclude fixation of certain minimum wages and/or salary thresholds based on average salaries in the host country.’ It can therefore be assumed that wage differences between Norwegian and Chinese employees will be large. Against this background, we conclude that commitments regarding mode 4 of supply are likely to increase considerably the presence of Chinese workers in Norway within certain service sectors.

While Norwegian legislation and business standards will apply to Chinese workers in Norway, significant compliance and enforcement problems may occur due to lack of knowledge regarding Norwegian rules and practices. Language difficulties and related communication challenges between Chinese workers and Norwegian employees, customers and public authorities are likely to aggravate such problems. Depending

⁸⁶ See http://www.ssb.no/english/subjects/06/lonn_en/.

on the character of the activity in question, compliance and enforcement problems may well lead to greater risk of harmful environmental effects from the activity or from accidents that may occur as a result of the activity. Possible mitigating measures are the following:

- Norway could exclude from the list of potential services those service categories deemed particularly sensitive from an environmental perspective.
- The Norwegian schedule could list reservations under mode 4 of supply relating to national treatment, to ensure future possibilities of establishing quality control with Chinese service suppliers or Chinese services.
- The FTA could include arrangements to promote cooperation among Chinese and Norwegian authorities.
- Measures could be taken to strengthen the capabilities of relevant Norwegian monitoring and enforcement authorities.

8.6 National treatment of investment

Introduction

The scope of the NT provision under the free trade scenario includes the pre-establishment phase. We take the following as the point of departure for our assessment (identical to the draft Norwegian Model BIT):

1. Each Party shall accord to investors of the other Party and to their investments, treatment no less favourable than the treatment it accords in like circumstances* to its own investors and their investments, in relation to the establishment, acquisition, expansion, management, conduct, operation and disposal of investments.
2. National treatment shall not apply to the reservations set out in Annex [A].

*[footnote] The Parties agree/ are of the understanding that a measure applied by a government in pursuance of legitimate policy objectives of public interest such as the protection of public health, safety and the environment, although having a different effect on an investment or investor of another Party, is not inconsistent with national treatment and most favoured nation treatment when justified by showing that it bears a reasonable relationship to rational policies not motivated by preference of domestic over foreign owned investment.

In addition, the free trade scenario includes investor–state dispute settlement, including the following limitations: (a) a duty to attempt to resolve the dispute for a minimum of four months prior to bringing the case to international arbitration, (b) a duty to attempt domestic remedies where such are reasonably available, and (c) ICSID to be the only available arbitration arrangement.

We note that the Norwegian authorities have made the following general assessment of the above NT provision:

The scope of the provision ... will probably not be greater than what the Norwegian authorities have already committed themselves to through Norwegian law and the general principles of administrative law associated with equal treatment and prohibition of unfair discriminatory treatment. There may be a need to conduct regulation that is in practice less favourable for a foreign investor than for a Norwegian investor on the basis of important social considerations. There may also be differences arising out of specific discretionary judgments, more stringent requirements over time and local variations. If the state can document that there are objective grounds for discriminatory treatment, this is not in conflict with the provision. The Norwegian authorities' right and obligation to regulate important sectors of society on the basis of rational variations will probably be retained in full.⁸⁷

Initially, we may distinguish between origin-based differential treatment (e.g. when foreign investments are subject to higher taxes due to their origin), and origin-neutral differential treatment (e.g. when one category of activities is subject to stricter emission standards than another category of activities). Origin-based differential treatment to the disadvantage of foreign investors or investments will be unlawful under the NT provision. Such measures may, however, be listed in the annex mentioned in para. 2 of the provision, and thus not be unlawful. Measures providing for origin-based differential treatment are easy to identify, and listing them in the annex would not pose any great problem. One concern is, however, that listing such measures is likely to step up the political pressure to eliminate the measure in question. Measures that may be particularly vulnerable are those that involve privileges to the local population, e.g. in relation to the management or exploitation of natural resources. In our view, there is a low risk that this arrangement may have negative impacts on environmental regulation. In order to mitigate such impacts, we would recommend that the FTA should not include 'standstill' and 'rollback' arrangements for such measures, and that it should be possible to list new measures, after providing sufficient justification for the necessity of the measures, without triggering a duty to compensate.

The NT provision can serve as the basis for challenging measures that are formally origin-neutral, i.e. that apply in the same manner to foreign and domestic investors or investments.⁸⁸ Measures that are origin-neutral would in general not be listed in the annex, and would thus not enjoy general exemption from the NT provision. The main reason for this assumption is that such rules would in general not be regarded as discriminatory, and that listing them in the annex would mean admitting that the measure has been taken for discriminatory purposes. Issues related to origin-neutral differential treatment will be considered in further detail below.

⁸⁷ Comments on the Model for Future Investment Agreements. 19 December 2007 at 18, available at [http://www.regjeringen.no/upload/NHD/Vedlegg/hoeringer/2008/Forklarende%20vedlegg%20\(engelsk\)%20-%20final.doc](http://www.regjeringen.no/upload/NHD/Vedlegg/hoeringer/2008/Forklarende%20vedlegg%20(engelsk)%20-%20final.doc).

⁸⁸ See e.g. *Bayindir Insaat Turizm Ticaret Ve Sanayi A.S. v. Islamic Republic of Pakistan*, ICSID case no. ARB/03/29, decision 27 August 2009, para. 390 and UNCTAD: 2005: 34.

Which measures are covered?

The NT provision would apply to the ‘establishment’, ‘acquisition’ and ‘expansion’ of investments. The establishment phase would cover situations where Chinese private parties or public authorities enter into contracts regarding investments, the associated rules regarding such contracts, and public regulations regarding permits or concessions to acquire investments or carry out activities, such as for example mining.

Moreover, the NT provision would apply to the ‘management’, ‘conduct’ and ‘operation’ of the investment. Assuming that the investment has been lawfully established, the NT obligation would apply to amendment to existing permits or concessions, new rules, new taxes, new subsidies, as well as (other) general or individual decisions that affect the investment and its associated activities.

Finally, the NT provision would apply to the ‘disposal’ of the investment. This covers the sale, expropriation, forced elimination, or forced transfer of the investment. Rules regarding expropriation, bankruptcy, security measures, financial security, etc. would be covered by this element of the provision.

We thus conclude that the NT provision in essence would cover all regulatory and economic measures that may affect an investment during its life-cycle.⁸⁹

The non-discrimination obligation

On the basis of case law, we distinguish three main approaches to origin-neutral discrimination: (1) whether the differential treatment is based on criteria that are arbitrary or void of objective justification,⁹⁰ (2) whether the differential treatment pursues a discriminatory objective or has discriminatory effects (an aims-and-effects test),⁹¹ and (3) to identify investors or investments that are comparable and determine whether there is less favourable treatment of foreign investor(s) or investment(s) when compared to domestic investor(s) or investment(s).⁹² Some of the case

⁸⁹ See, in the same direction, *Merrill & Ring Forestry L.P. v. Canada*, UNCITRAL (NAFTA), award, 31 March 2010, para. 79: ‘This is a broad definition indeed, as it includes almost any conceivable measure that can be with respect to the beginning, development, management and end of an investor’s business activity.’

⁹⁰ See *Consortium R.F.C.C.v. Kingdom of Morocco*, ICSID case no. ARB/00/6, para. 74: ‘lorsque la différence de traitement entre investisseurs nationaux et étrangers repose sur des critères arbitraires ou dénués de tout fondement objectif.’

⁹¹ See *LG&E Energy Corp., LG&E Capital Corp. and LG&E International Inc. v. Argentine Republic*, ICSID case no. ARB/02/1, para. 146, and *Siemens AG v. Argentine Republic*, ICSID case no. ARB/02/8, paras. 320–321.

⁹² See *Marvin Roy Feldman Karpa v. United Mexican States*, ICSID case no. ARB(AF)/99/1, paras. 166–188, *Champion Trading Company and Ameritrade International Inc. v. Arab Republic of Egypt*, ICSID case no. ARB/02/), para. 128, *ADF Group Inc. v. United States of America*, ICSID case no. ARB(AF)/00/1, paras. 155–157, *Técnicas Medioambientales Tecmed S.A. v. United Mexican States*, ICSID case no. ARB(AF)/00/2, para. 181, *CMS Gas Transmission Company v. Argentine Republic*, ICSID case no. ARB/01/8, paras. 293–294, *Metalpar S.A. and Buen Aire S.A. v. Argentine Republic*, ICSID case no. ARB/03/5, paras. 160–164, and *Bayindir Insaat Turizm Ticaret*

law, in particular case law under NAFTA, combines these approaches.⁹³ On the basis of developments in case law, we find that the approach most likely to be applied in the future is one based on alternative (3): to identify investors or investments that are comparable and determine whether there is less favourable treatment of foreign investor(s) or investment(s) when compared to domestic investor(s) or investment(s), and to supplement such considerations with an assessment of whether there is evidence of discriminatory intent.

In general, the trend in case law seems to indicate that investors face a heavy burden of proof when invoking NT provisions. We also observe that investors frequently fail to produce relevant evidence to substantiate their claims of violation of such provisions. This is, in our view, to a significant extent related to the lack of clarity and predictability related to national treatment provisions. Such lack of clarity and predictability seems to lead to results that are unfavourable to investors. One main challenge for investors is to determine whom to use as a basis for comparison. Case law remains unclear in this regard. At the one extreme, an investor can be faced with the challenge of demonstrating that the measure in question has effects that would generally be unfavourable to foreign investors. At the other extreme, an investor could choose among a broad range of domestic investors and demand to be compared to the investor that receives the most favourable treatment among them. Currently, an arbitration panels may be open to approaches that include the two extremes as well as intermediary approaches.

The provision we consider would refer to investors ‘in like circumstances’. Similar language has been used in NAFTA art. 1102, and would make case law under NAFTA particularly relevant. The trend in this case law may possibly indicate that a foreign investor may choose to be compared to the domestic investor who receives most favourable treatment, but that the range of relevant domestic investors is defined very restrictively, i.e. that the concept ‘in like circumstances’ serves to narrow the range of relevant domestic investors to a small group.⁹⁴ For the purpose of this assessment, it is of importance to assess which criteria might be relevant when determining whether investors are ‘in like circumstances’. On the basis of case law, we can note that one important criterion concerns regulatory circumstances (i.e. investors are subject to the same regulatory framework). This criterion extends to all measures taken by public authorities, as well as to jurisdictional issues. Of particular interest here is whether environmental or other physical

Ve Sanayi A.S. v. Islamic Republic of Pakistan, ICSID Case no. ARB/03/29, para. 390, *Merrill & Ring Forestry L.P. v. Canada*, UNCITRAL (NAFTA), award, 31 March 2010, paras. 83–94, and *Grand River Enterprises et al. v. United States of America*, UNCITRAL (NAFTA), award 12 January 2011, paras. 165–171.

⁹³ See *S.D. Myers, Inc. v. The Government of Canada*, UNCITRAL (NAFTA), paras. 243–55; *Methanex Corporation v. The United States of America*, UNCITRAL (NAFTA), part IV, section B, paras. 6–19; *Pope & Talbot Inc. v. The Government of Canada* (award 2), UNCITRAL (NAFTA), para. 78, and *Alpha Projektholding GmbH v. Ukraine*, ICSID case no. ARB/07/16, paras. 426–428.

⁹⁴ See, in particular, *Merrill & Ring Forestry L.P. v. Canada*, UNCITRAL (NAFTA), award, 31 March 2010, paras. 83–94.

circumstances of the investors could be relevant. The starting point is that such circumstances could be relevant, but that the extent to which they are relevant and their relative importance remain uncertain. The time at which the circumstances should be considered is also important, especially if the public authorities claim that the environmental situation has deteriorated or that the accumulated impact on the environment differs from previously. While the time aspect is relevant, the extent to which new circumstances are relevant and the importance attributed to such new circumstances remains unclear.

We also observe that the general trend in international arbitration seems to be to invoke the 'fair and equitable treatment' provisions rather than the national treatment provisions. There is considerable overlap between the two, in particular where the former also include a non-discrimination clause. Efforts are being made to further specify fair and equitable treatment provisions; the version included in the draft Norwegian Model BIT is among the narrow provisions, due to its limitation to customary international law, and does not refer to non-discrimination: 'Each Party shall accord to investors of the other Party, and their investments treatment in accordance with customary international law, including fair and equitable treatment and full protection and security.' The Sino-Norwegian BIT contains a somewhat broader provision on fair and equitable treatment: the duty to accord 'fair and equitable treatment and protection'.

Against this background, we find that there is a low but slightly higher than average (when compared to BITs and other FTAs) probability that an investor will invoke the NT provision under a Sino-Norwegian FTA, mainly due to the lack of alternative legal bases for claims and the high degree of discretion provided for by Norwegian legislation. We also find that the probability that an investor will invoke the NT is likely to increase, mainly due to expected clarification of the interpretation of the NT clause. The burden of proof to be fulfilled by an investor invoking the NT provision will remain unclear in the near future, but will probably be clarified in the medium term (five to ten years). The substantive result of such clarification is difficult to predict, but we assume that such clarification will attempt to establish a fair balance between the interests of investors and states, as seen from the perspective of investment tribunals.

Public authorities' possibility of defending measures

The footnote to the draft Norwegian Model BIT allows the state to maintain a measure that otherwise would be inconsistent with the NT clause if it can show that the measure 'bears a reasonable relationship to rational policies not motivated by preference of domestic over foreign owned investment'. Some key elements in this provision need to be clarified: what constitute 'rational policies'; when is there a 'reasonable relationship' between the contested measure and such policies; and how to determine whether the policies are 'motivated by preference of domestic over foreign owned investment'. As a starting point, we observe that it would be the state that carries the burden of proving that these

conditions are fulfilled. In the following, we will indicate some issues that arise in relation to the conditions.

The requirement that the policies be ‘rational’ can be read as a requirement that the measures that constitute parts of the policies should be suited for achieving the aim of the policies. Moreover, it can be argued that, in order to be ‘rational’, the policy must pursue legitimate policy objectives. Which interests would be relevant when taking decisions under environmental legislation? While it would be legitimate to consider environmental concerns when taking decisions under the Pollution Control Act, it is more questionable whether it would be relevant to consider social or economic interests, e.g. local employment or tax revenues. We observe that Norwegian legislation in general provides for broad margins of appreciation in deciding issues under environmental legislation, and that social and economic interests frequently play a significant and sometimes decisive role in such decisions. In our view, the extent to which such approaches to environmental decision-making will fulfil the requirement of ‘rational policies’ remains unclear.

The requirement that there be a ‘reasonable relationship’ between measures and the policies can be read as requiring that the measures must be aimed primarily at achieving the objectives of the policies. If the effects of the measures are to promote the objectives of other policies – in the case of environmental measures: increased employment or development of rural areas – it can be concluded that such measures do not have a ‘reasonable relationship’ to the policies. To a large extent, this requirement overlaps with the requirement that the policies be ‘rational’.

The state must also show that the policies are not ‘motivated by preference of domestic over foreign owned investment’. The starting point here is that there is a measure that is in violation of the NT rule. The assumption is therefore that the measure is discriminatory. The state would thus face the difficult task of demonstrating that the measure is part of broader policies that cannot be regarded as being motivated by discriminatory preferences. The starting point for such a defence would be to prove the motivation of the policies when they were adopted, through documents related to the decision-making process. In addition, one would have to demonstrate that the policies have not subsequently been applied in a discriminatory manner.

Against this background, we find that the footnote would allow states to justify measures that otherwise would be regarded as unlawful under the NT provision, but that the threshold would be rather high. We also observe that this provision would place greater emphasis on the motivation of public authorities, and that this would allow a broad range of arguments and materials to be brought forward during dispute settlement. This could significantly raise the cost of proceedings to the parties to a dispute.

Concluding remarks

The probability that the NT provision will have consequences for environmental policy depends on the characteristics of Chinese

investments in Norway. If Norway undertakes commitments in accordance with what is assumed under sections 8.4 and 8.5 above, it is likely that Chinese investments would increase significantly in certain sectors, including mining, petroleum and energy production. The Norwegian authorities concluded that, despite the NT provision, ‘Norwegian authorities’ right and obligation to regulate important sectors of society on the basis of rational variations will probably be retained in full.’⁹⁵ We have arrived at a different conclusion. There is a high threshold for applying the general non-discrimination obligation according to general administrative law in Norway, and we find that the NT obligation would constitute a lower threshold. In particular, we find that application of the broad discretion given to environmental authorities under current legislation would be vulnerable under the NT provision. We also find that there might be limited possibilities of taking environmental considerations under legislation that does not aim at environmental protection and that does not include provisions explicitly stating that environmental considerations are relevant.

⁹⁵ Comments on the Model for Future Investment Agreements. 19 December 2007 at 18, available at [http://www.regjeringen.no/upload/NHD/Vedlegg/hoeringer/2008/Forklarende%20vedlegg%20\(engelsk\)%20-%20final.doc](http://www.regjeringen.no/upload/NHD/Vedlegg/hoeringer/2008/Forklarende%20vedlegg%20(engelsk)%20-%20final.doc).

9. Environmental impacts of a green trade scenario

In this chapter we examine environmental impacts of the green trade scenario. We start by discussing possible impacts of *integrating general clauses on the environment* into the agreement. We then analyse impacts of *fast-tracking environmental goods and services*. We briefly discuss impacts of *export duties and controls of environmentally damaging goods*. Thereafter we analyse the issue of *intellectual property rights*, in particular with respect to impacts on biodiversity. See section 7.3 for a discussion of why these themes are in focus in the green trade scenario.

Promoting a green trade agenda often involves trade in goods, trade in services, research and development, and investment in an integrated whole. To bring out this facet of a green trade scenario we briefly discuss possible impacts with respect to two clusters: ‘clean energy’ and ‘carbon capture and storage’. This choice is further explained in section 7.3.

A green FTA between China and Norway may provide stimulus to the international negotiations of trade relations. For instance, the question of how to delineate a list of green (environmental) goods has been vexing in the WTO for some time. Hu Tao (2011) provides further details to the discussion of how bilateral negotiations can contribute to multilateral processes. We do not deal with this issue in further detail, but would encourage readers to keep this perspective in mind when studying the assessments below.

9.1 Integration of general clauses on the environment

Introduction

This section considers the possible effects of including provisions to avoid negative and enhance positive environmental effects of the FTA. The selection of clauses has been made on the basis of clauses contained in the WTO Agreement, existing bilateral agreements, in model agreements, and in the EFTA paper on ‘draft model provisions concerning the environment and labour standards in EFTA Free Trade Agreements’. The analysis is based on experiences with similar clauses in other agreements, in particular those based on case law.

The analysis focuses on the following groups of provisions: preambular text, substantive provisions regarding objectives and principles, substantive provisions regarding rights and duties of states, and procedural rules.

Preambular text

Almost all the preambles of the FTAs considered for the purposes of this report contain some provisions regarding sustainable development and/or environmental protection.⁹⁶ The preamble of the China–Chile FTA offers a standard formulation:

⁹⁶ One exception is the China–Singapore FTA.

Recognizing that this Agreement should be implemented with a view toward ... promoting sustainable development in a manner consistent with environmental protection and conservation;⁹⁷

Another formulation that prescribes a more active pursuit of environmental objectives can be found in the preamble of the EFTA–Peru FTA:

PROMOTE environmental protection and conservation, and sustainable development;

One of the FTAs refers only to the objective of promoting sustainable development.⁹⁸

The most elaborate formulation of the relationship between the FTA and environmental issues can be found in the EFTA–Hong Kong FTA:

REAFFIRMING their commitment to pursue the objective of sustainable development and recognising the interdependence and mutual supportiveness of trade, environment and labour policies in this respect;

RECALLING their rights and obligations under multilateral environmental agreements applicable to them, ...;

AIMING to create new employment opportunities, raise the living standards of their people and improve their living conditions through liberalising trade and improving levels of protection of health and safety and of the environment; ...

DETERMINED to implement this Agreement in line with the objectives to preserve and protect the environment through sound environmental management and to promote an optimal use of the world's resources in accordance with the objective of sustainable development; ...

ACKNOWLEDGING the importance of good corporate governance and corporate social responsibility for sustainable development, and affirming their aim to encourage enterprises to take into account internationally recognised guidelines and principles where appropriate;

In the following, we assess the potential implications of including the following provisions concerning the relationship between the FTA and environmental issues in the preamble of the FTA:

1. a statement on the relationship between the FTA and existing environmental agreements;
2. a statement concerning the interpretation of obligations under the FTA in light of environmental commitments and policies;
3. a statement concerning the national implementation of the FTA in light of environmental policy measures; and
4. a statement concerning the future cooperation under the FTA in light of environmental objectives.

⁹⁷ Similar statements can be found in the China–Pakistan, China–Peru, China–New Zealand, EFTA–Korea, EFTA–Peru, and EFTA–Singapore FTAs.

⁹⁸ See the China–Costa Rica FTA.

Preambular language can have consequences for the subsequent life of an FTA, in particular in relation to its interpretation, implementation, and which items are brought onto the agenda for future cooperation.

The *interpretation* of an FTA becomes an especially important issue when disputes are brought to arbitration under the FTA. However, there have been hardly any examples of such arbitration cases so far. Arbitration proceedings are most likely to occur where private parties are allowed to bring forward cases. Such opportunities are generally available only under the investment chapter of the FTA. In such cases, the preambular language of the FTA may influence the interpretation of specific provisions of the investment chapter. In a bilateral context, it is likely that an arbitration tribunal will pay particular attention to the intention of the parties to the FTA, and the extent to which such intentions are expressed in the preamble of the agreement will be of significant support to the tribunal. Moreover, a tribunal will frequently be faced with the choice of how it should relate to case law from other arbitration tribunals and the WTO. If the FTA defines the intention of the parties in the preamble, this should provide the tribunal with an improved basis for determining the relevance and importance of such case law. In sum, while it currently seems unlikely that arbitration will take place under the FTA, we observe that if such arbitration should occur, preambular language could constitute important guidance for the tribunal when interpreting the FTA.

In addition, the interpretation of provisions of the FTA will be relevant during consultations between the authorities of China and Norway regarding specific cases or more general policy developments. Such consultations are likely to occur on a regular basis, and statements and analyses concerning the interpretation of the provisions can be presented during such consultations. Consultations are likely to place even more emphasis on the parties' intentions than are arbitration tribunals. Preambular language may constitute a significant source of support for such statements and analyses.

Against this background, we find that preambular language, including statements on the relationship between the FTA and existing environmental agreements, is unlikely to have effects in the short term, but that it is likely to be of some importance to the interpretation and application of the FTA in the medium and long term.

During the initial phase after the conclusion of the FTA, the *implementation* of the FTA is a domestic policy issue to be determined through national decision-making procedures. Preambular text of the FTA may be of some significance for the process of building political support to the FTA, as references to text in the preamble can demonstrate the good intentions of the parties in drafting the FTA. However, the preamble is less likely to be of significance when the national authorities consider specific legislative, regulatory or other policy measures to be taken in the context of accepting the FTA, as such measures are considered and adopted essentially in response to the substantive obligations undertaken in the FTA. During the subsequent phases, for example when countries design institutional structures to follow up the

FTA, preambular language may play an important role. Preambular language may be of importance to the composition of domestic institutional structures and when defining their mandate (e.g. should mechanisms be established to consult environmental expertise; and to what extent will institutions be expected to take into account environmental effects). During consultation between the parties concerning the implementation of the FTA, parties can refer to preambular language in support of their views. We find that preambular language, including such language on the interpretation of the FTA and the relationship between the FTA and existing environmental agreements, is likely to be of some importance to the implementation of the FTA in the medium and long term.

The FTA will constitute a basis for *future cooperation* among the parties to the FTA. Provisions regarding such cooperation will be considered in more detail below. Preambular text may be relevant when specifying the general framework for such cooperation. However, preambular text is unlikely to be of importance if the framework for such cooperation already is specified in relevant provisions of the FTA. The importance of the preamble in this context will thus depend on the degree to which the framework for future cooperation is spelled out in relevant provisions.

Substantive provisions regarding objective and principles

In the following, we assess the potential implications of including the following provisions regarding objective and principles in the main text of the FTA:

1. Linking the objective of the FTA to environmental objectives and/or sustainable development
2. Linking the basic principles of the FTA to environmental principles, such as the precautionary principle and the polluter pays principle.

In general, China's and Norway's FTAs do include a provision that sets out the general *objectives* of the FTAs. In contrast to most of the preambles of the agreements, such provisions generally do not make explicit reference to environmental issues or sustainable development. One exception is art. 2(1) of the FTA between China and Costa Rica: 'The objectives of this Agreement are to: ... (f) confirm their commitment to the promotion of trade and reaffirm their aspiration to achieve an appropriate balance between the economic, social and environmental components of sustainable development'. Likewise art. 1.1(2) of Norway's FTA with Hong Kong: 'The objectives of this Agreement are: ... (h) to develop international trade in such a way as to contribute to the objective of sustainable development and to ensure that this objective is integrated and reflected in the Parties' trade relationship'. In addition, the Hong Kong FTA contains the following provision in the environmental chapter:

Article 8.1

2. The Parties recognise that economic development, social development and environmental protection are interdependent and mutually supportive components of sustainable development. They underline that closer economic partnership can play an important role in promoting sustainable development.

3. The Parties reaffirm their commitment to promote the development of international and bilateral trade in such a way as to contribute to the objective of sustainable development and to integrate and reflect this objective in the Parties' trade relationship.

The EFTA draft model provisions concerning the environment include the following provision regarding the objective:

1. The EFTA States and [State] shall establish a free trade area by means of this Agreement and the complementary agreements on trade in basic agricultural goods, concurrently concluded between [State] and each individual EFTA State, with a view to spurring prosperity and sustainable development.
2. The objectives of this Agreement, which is based on trade relations between market economies and on the respect of democratic principles and human rights, are: ... to develop international trade in such a way as to contribute to the objective of sustainable development and to ensure that this objective is integrated and reflected in the Parties' trade relationship;

We note that the EFTA draft model refers to 'sustainable development', but does not mention environmental issues specifically.

Provisions on the objectives of FTAs have similar functions as have preambular texts, but substantive provisions in FTAs carry more weight. This point is underlined in China's FTA with Costa Rica, which states in art. 2(2) that: 'The Parties shall interpret and apply the provisions of this Agreement in the light of its objectives set out in paragraph 1'. However, we note that the above-mentioned provisions are formulated in broad language and that lack of specificity is likely to reduce the importance of references to environment-related issues – especially if provisions use the sustainable development concept rather than referring to environmental protection or aspects of such protection.

In order for substantive provisions regarding the objective of the FTA to be of some importance, such provisions must be sufficiently specific. We further observe that the effectiveness of language to strengthen environmental perspectives in the preamble could be undermined if the main body of the FTA contains a provision on the objective of the FTA that does not link the objective to environmental objectives.

Only one of the FTAs examined contains provisions that in general link the *principles* of the FTA to environmental principles. This is the EFTA–Hong Kong FTA. According to its art. 8.5:

The Parties reaffirm their commitment to the effective implementation in their respective domestic law and practices of the multilateral environmental agreements applicable to them, as well as their adherence to environmental principles reflected in the international instruments referred to in Article 8.1.

The instruments mentioned in art. 8.1 are the Stockholm Declaration (1972), the Rio Declaration (1992), and the Johannesburg Plan of Implementation on Sustainable Development (2002). In addition, China's FTA with Peru mentions environmental principles in its art. 145(2): 'The Parties acknowledge and reaffirm the principles ... established in the Convention on Biological Diversity ..., and encourage the effort to establish a mutually supportive relationship between the TRIPS Agreement and the Convention on Biological Diversity, regarding genetic resources and the protection of traditional knowledge and folklore.' One core source for the identification of environmental principles that are universally accepted is the Rio Declaration on Environment and Development (1992). We find the following principles to be of particular relevance in the context of a bilateral FTA with China:

Principle 8: To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Principle 9: States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Principle 11: States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and development context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 14: States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15: In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16: 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.

A selection of such principles could be referred to in the FTA. On the one hand, linking the basic principles of the FTA (such as non-discrimination and elimination of unnecessary barriers to trade) to such environmental and sustainable development principles may be difficult and has to our knowledge not been attempted previously. On the other hand, such a process could serve to clarify the role of the FTA within the broader challenges of promoting sustainable development; moreover, it could further specify general statements concerning the objective of the FTA and thus clarify how the FTA is subsequently to be interpreted, implemented, and further developed through subsequent cooperation.

We find it difficult to predict the value added by further specifying the relationship between basic principles of the FTA and environmental and sustainable development principles. Where the FTA contains an elaborate provision defining the objective of the FTA and how it relates to environmental issues, the value added by an additional provision concerning principles is likely to be low. Where the FTA's provision on objective is general, we consider the value that could be added by a provision on principles to be more significant but still limited.

Substantive provisions concerning rights and duties

The inclusion of general exceptions that cover environmental protection in FTAs has been discussed above in section 5.4 (free trade scenario). Existing FTAs differ somewhat in how they regulate general exceptions. In addition to general exceptions, some FTAs include additional provisions aimed at avoiding certain physical or regulatory environmental consequences. Such provisions have been identified in the EFTA draft model provisions. In the following, we assess the potential implications of including the following provisions concerning rights and duties of states in the main text of a Sino–Norwegian FTA:

1. General exceptions
2. Relationship to multilateral environmental agreements
3. 'Not lowering standards'
4. Right to regulate

In accordance with the conclusion in section 6.1, we will not consider the inclusion of more extensive provisions on environmental cooperation in the FTA.

General exceptions: One issue regarding general exceptions is their *scope of application*. First, we will discuss the inclusion of general exceptions that extend their scope of application to environmental protection. As existing general exceptions in GATT and GATS are have been interpreted broadly in this respect, we observe that it is unlikely that such an extension would be controversial. Moreover, we find that such an extension will have insignificant effects for the possibilities of defending contested environmental measures under a Sino–Norwegian FTA, as such measures would be covered by the provisions currently included in FTAs.

Secondly, we address the extension in the FTA of the application of general exceptions to the whole agreement. This would mean that the exceptions could be invoked in relation to rules concerning sanitary and phytosanitary measures, technical barriers to trade, subsidies, dumping, trade-related investment measures (‘performance requirements’ in particular), intellectual property rights, and, if relevant, government procurement. One issue is whether such extension of the scope of the general exceptions could be a problem in relation to the obligations of Norway and China under the WTO Agreement, in particular the conditions of art. XXIV:8(b) of GATT. According to this provision, an FTA must prescribe that ‘restrictive regulations of commerce (except, where necessary, those permitted under Articles ... XX) are eliminated on substantially all the trade ...’⁹⁹ On the one hand, it can be argued that an extension of the general exception would allow countries to introduce restrictive regulations of commerce beyond what is currently allowed under the WTO Agreement. Moreover, the *lex specialis* rule regulating the relationship between GATT and other agreements in Annex 1A to the WTO Agreement (see the General interpretative note to Annex 1A to the WTO Agreement) can be invoked as an argument against applying the exception to obligations under the other agreements of Annex 1A. On the other hand, it can be argued that an extension of the general exception would only allow measures that would be permitted under art. XX of GATT. While we are in some doubt, we find the latter approach to the application of art. XXIV:8(b) more convincing and in accordance with the wording of art. XXIV of GATT. In any case, the effects of extending the general exception to other rules are limited due to the strict conditions that must be fulfilled by countries invoking the exception. Nevertheless, such extension might prove useful in situations where it would be particularly important to maintain the possibility of using trade restrictive measures for environmental purposes.

A second issue concerning general exceptions is the requirement that there be a relationship between the contested measure and the objective that it pursues. Several approaches to this relationship in the two provisions of GATT are especially relevant from an environmental perspective (art. XX(b) – ‘necessary’ and (g) – ‘relating to’). The question here would be whether a less onerous requirement would be a problem in relation to art. XXIV:8(b) of GATT. Since such a provision would go beyond measures that are ‘permitted under’ art. XX of GATT, we deem it not unlikely that less onerous conditions would risk not being in compliance with art. XXIV:8(b) of GATT. On the other hand, we doubt that such an issue would be sufficiently important to prevent an FTA from being accepted under art. XXIV of GATT. A similar reasoning would apply under GATS art. V:1(b). However, as this provision is more flexible than art. XXIV of GATT, our conclusion under GATS is less certain.

⁹⁹ There is a similar provision in art. V:1(b) of GATS, but this requirement is not pertinent here, since the general exception of GATS covers all relevant rules concerning trade in services. There is no general regulation of these issues in the Agreement Establishing the WTO.

Finally, the third issue is whether the FTA would be allowed to relax the conditions set out in the preambles (*chapeaux*) of art. XX of GATT and art. XIV of GATS. We apply a reasoning that is parallel to that immediately above, and come to the same conclusions here.

Relationship to multilateral environmental agreements (MEAs): The issue of the relationship between the WTO Agreement and MEAs has been on the agenda of the WTO and GATT for more than 20 years. Little has been achieved in terms of establishing rules to govern the relationship within the WTO. The issue is particularly relevant for treaties that explicitly regulate trade in hazardous goods and treaties aimed at controlling certain production practices. Relevant issues appear frequently, recently relating to Chinese support to producers of renewable energy equipment, which is relevant in relation to Chinese commitments under the UN Framework Convention on Climate Change.¹⁰⁰

The relationship between the FTA and existing multilateral treaties can be addressed in two distinct ways. The most far-reaching is to include a general clause stating that the FTA does not affect rights and obligations under all existing treaties (a so-called ‘safeguard clause’). Such clauses can be found in almost all FTAs analysed for the purposes of this study.¹⁰¹ Such a clause would ensure that a Sino–Norwegian FTA would not affect obligations under existing MEAs. A more limited approach would be to adopt a provision stating that the FTA will not affect the rights and obligations of the parties under certain specified treaties. This would be particularly relevant for MEAs that regulate international trade in certain products or services.¹⁰² On the one hand, this approach would limit the number of MEAs that would be protected. On the other hand, it would allow for more specific regulation of the relationship between the FTA and the MEAs.

We find that the effects of including general reservations are likely to be limited. There have been few, if any, situations of clear conflict between MEAs and obligations under FTAs; moreover, should such situations arise, one could invoke the general exceptions. Only in exceptional cases could a measure taken to follow up obligations under a MEA arguably not qualify under general exceptions – for example, where only one of the states in question is party to the MEA.

¹⁰⁰ See WTO case WT/DS419.

¹⁰¹ Such clauses can be found in art. 1.4 of the EFTA–Peru FTA, art. 4 of the EFTA–Chile FTA, art. 1.4 of the EFTA–Hong Kong FTA, art. 1.5 of the EFTA–Korea FTA, art. 4 of the EFTA–Singapore FTA, art. 3 of the China–Chile FTA, art. 3 of the China–Costa Rica FTA, and art. 3 of the China–New Zealand FTA.

¹⁰² An example of such a provision can be found in NAFTA art. 104: ‘1. In the event of any inconsistency between this Agreement and the specific trade obligations set out in: (a) the [CITES], (b) the Montreal Protocol ..., (c) the Basel Convention ... , or (d) the agreements set out in Annex 104.1, such obligations shall prevail to the extent of the inconsistency, provided that where a Party has a choice among equally effective and reasonably available means of complying with such obligations, the Party chooses the alternative that is the least inconsistent with the other provisions of this Agreement. 2. The Parties may agree in writing to modify Annex 104.1 to include any amendment to an agreement referred to in paragraph 1, and any other environmental or conservation agreement.’

The Chinese example concerning support to production of renewable energy equipment (e.g. wind turbines) illustrates the complex issues that may nevertheless arise.¹⁰³ Under art. 4.1(c) of the UNFCCC, China has an obligation to: ‘Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases ... in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors’. While Chinese support to production of renewable energy equipment would serve to fulfil its obligations according to this provision, it is clear that China has no specific duty to provide such support under the UNFCCC. A general ‘savings clause’ would not resolve this challenge. A more specific clause regulating the relationship between specific agreements in more detail could address such challenges and resolve them in favour of measures taken to follow up general obligations under MEAs.

The EFTA draft model provisions take a different approach to these issues. One general provision on the relationship to other international agreements is not finalized; another provision focusing on MEAs states: ‘The Parties reaffirm their commitment to the effective implementation in their laws and practices of the multilateral environmental agreements to which they are party, as well as their adherence to environmental principles reflected in the international instruments ...’ A parallel provision has been included in art. 8.5 of the EFTA–Hong Kong FTA. These provisions do not address the compatibility of measures taken in accordance with MEAs in relation to FTAs, and are therefore not relevant in the following.

Against this background, and in light of the lack of obligations to take specific measures in most MEAs, we find that the most effective approach to ensuring appropriate regulation of the relationship between the FTA and MEAs would be to adopt a provision that contains more precise rules regarding the relationship between the FTA and a limited number of MEAs. Such a provision should regulate the relationship in cases where the measure in question is taken to achieve results provided for in the MEA.

Not lowering standards: The only of the FTAs analysed¹⁰⁴ that includes a ‘not lowering standards’ clause is the EFTA–Hong Kong FTA. Article 8.4 states that:

1. The Parties will faithfully enforce their environmental laws, regulations and standards.

¹⁰³ WTO case WT/DS419.

¹⁰⁴ The first example of such a clause is art. 1114.2 in the investment chapter of NAFTA: ‘The Parties recognize that it is inappropriate to encourage investment by relaxing domestic health, safety or environmental measures. Accordingly, a Party should not waive or otherwise derogate from, or offer to waive or otherwise derogate from, such measures as an encouragement for the establishment, acquisition, expansion or retention in its territory of an investment of an investor. If a Party considers that another Party has offered such an encouragement, it may request consultations with the other Party and the two Parties shall consult with a view to avoiding any such encouragement.’

2. Subject to Article 8.3 [right to regulate], a Party will not:

(a) weaken or reduce the level of environmental protection provided by its laws, regulations or standards with the sole intention to encourage investment from another Party or to seek or enhance a competitive trade advantage of producers or service providers operating in that Party; or

(b) waive or otherwise derogate from, or offer to waive or otherwise derogate from, such laws, regulations or standards in order to encourage investment from another Party or to seek or enhance a competitive trade advantage of producers or service providers operating in that Party.

As is the case with the whole environmental chapter of the EFTA–Hong Kong FTA, compliance with this provision can be subject only to consultations between the parties and not to ordinary dispute settlement (see art. 8.8(3)). The EFTA draft model provisions contains a similar provision:

(a) A Party shall not fail to effectively enforce its environmental ... laws, regulations or standards in a manner affecting trade or investment between the Parties.

(b)... a Party shall not a) weaken or reduce the level of environmental ... protection provided by its laws, regulations or standards with the sole intention to encourage investment from another Party or to seek or to enhance a competitive trade advantage of producers or service providers operating in its territory, or b) waive or otherwise derogate from, or offer to waive or otherwise derogate from, such laws, regulations or standards in order to encourage investment from another Party or to seek or to enhance a competitive trade advantage of producers or service providers operating in its territory.

Is the inclusion of an opportunity to bring cases to dispute settlement likely to have a considerable effect on the degree to which states can be expected to comply with this provision? We consider it highly unlikely that one state will bring any case forward to dispute settlement on the basis of such a provision. We also deem it highly unlikely that states would accept to give private parties the right to bring forward such disputes. Hence, we consider that the major impact of providing the possibility of inter-state dispute settlement would be that states may threaten to bring forward such disputes, which might promote the achievement of good-faith consultations. In this respect, we find that the inclusion of a dispute settlement option might have some effect.

We note that the provisions quoted above are in some senses rather broad, as they apply to measures that ‘weaken or reduce the level of protection’ and in situations where such measures are adopted in order to ‘enhance a competitive’ trade advantage. However, it might be difficult for a complainant state to satisfy the burden of proving that these conditions are fulfilled. In particular, we find that an obligation to demonstrate the ‘sole intention’ of another state, as prescribed in the EFTA–Hong Kong FTA, might prove particularly burdensome.

In light of our findings in chapters 2 and 3, we deem it unlikely that Norway or China will have lowering of environmental standards as part of their general policy within certain geographical areas or within specific sectors. Nevertheless, questions regarding relaxation of such standards may surface from time to time as a result of specific situations, for example when the competitiveness of an industry is significantly weakened. The existence of a high-level consultation mechanism mandated to deal with disputes could prove important in the rare cases that might occur.

Right to regulate: The only one of the FTAs analysed that includes a general¹⁰⁵ provision on the right to regulate is the EFTA–Hong Kong FTA (art. 8.3):

Recognising the right of each Party to establish its own level of environmental protection and to adopt or modify accordingly its domestic law and policies in a manner consistent with this Agreement, each Party will seek to ensure that its domestic law, policies and practices provide for and encourage high levels of environmental protection, consistent with standards, principles and agreements referred to in Article 8.5, and will strive to further improve the level of protection provided for in domestic law and policies.

The EFTA draft model provisions contains a similar provision:

1. Recognising the right of each Party, subject to the provisions of this Agreement, to establish its own level of environmental ... protection, and to adopt or modify accordingly its relevant laws and policies, each Party shall seek to ensure that its laws, policies and practices provide for and encourage high levels of environmental ... protection, consistent with standards, principles and agreements referred to in Articles ..., and shall strive to further improve the level of protection provided for in those laws and policies.

2. The Parties recognise the importance, when preparing and implementing measures related to the environment ... that affect trade and investment between them, of taking account of scientific, technical and other information, and relevant international standards, guidelines and recommendations.

It is clear that such provisions cannot establish a separate legal basis for justifying environmental measures that would otherwise be in violation of the FTA. However, such provisions might have some impact on the interpretation of other provisions of the FTA. We find that such impact is unlikely to be significant, due to the existence of separate preambular language and provisions that define the purpose of the FTA. In addition, locating such provisions in a separate chapter on the environment could

¹⁰⁵ Art. 43 of the EFTA–Singapore FTA includes a provision that is limited to investment: ‘Nothing in this Chapter shall be construed to prevent a Party from adopting, maintaining or enforcing any measure consistent with this Chapter that is in the public interest, such as measures to meet health, safety or environmental concerns.’

detract from the general impact such provisions would otherwise have had, if they had been included among the general provisions of the FTA.

Procedural rules

In this section we consider rules that might facilitate future cooperation among the states in order to avoid adverse and enhance positive environmental effects of a Sino–Norwegian FTA. We will not consider provisions regarding general cooperation under such an FTA: our focus will be on those provisions that specifically concern procedures for dealing with environmental issues.

Among the FTAs analysed for this study, the China–New Zealand FTA and the China–Chile FTA set up frameworks for separate agreements on environmental cooperation. We have been able to access only the Environmental Cooperation Agreement with New Zealand. The scope of the cooperative arrangement established by this environmental agreement is limited to the mandate set out in the environmental cooperation agreement. Beyond the reference to the Environmental Cooperation Agreement in art. 177 of the China–New Zealand FTA, there is no link between the two agreements. Hence, there is no specific mechanism in place in either agreement for following up on possible environmental consequences of the FTA.

One example of an environmental side agreement that *does* link up with the associated free trade agreement is the North American Agreement on Environmental Cooperation (NAAEC), which is closely associated with NAFTA. Arguably, the NAAEC is of limited relevance to the Sino–Norwegian FTA negotiations due to its regional character and its focus on transboundary environmental challenges. It can also be noted that the environmental cooperation based on the NAAEC seems to have been very limited in recent years.¹⁰⁶ Nevertheless, the NAAEC contains some provisions of more general interest, in particular on how to establish links between an FTA and environmental cooperation. The following tasks are identified for the Council (art. 10.3 and 10.6):

(b) without reducing levels of environmental protection, establishing a process for developing recommendations on greater compatibility of environmental technical regulations, standards and conformity assessment procedures in a manner consistent with the NAFTA. ...

6. The Council shall cooperate with the NAFTA Free Trade Commission to achieve the environmental goals and objectives of the NAFTA by:

¹⁰⁶ Judging from its website (www.cec.org), the level of activity has declined substantially, and for no apparent reason. No annual report has been published since the 2004 report; there are no projects plans beyond 2012; and the average number of registered citizen submissions on enforcement matters has decreased since 2006. Literature searches provide little information on the past seven years.

- (a) acting as a point of inquiry and receipt for comments from non-governmental organizations and persons concerning those goals and objectives;
- (b) providing assistance in consultations under Article 1114 of the NAFTA where a Party considers that another Party is waiving or derogating from, or offering to waive or otherwise derogate from, an environmental measure as an encouragement to establish, acquire, expand or retain an investment of an investor, with a view to avoiding any such encouragement;
- (c) contributing to the prevention or resolution of environment-related trade disputes by: (i) seeking to avoid disputes between the Parties, (ii) making recommendations to the Free Trade Commission with respect to the avoidance of such disputes, and (iii) identifying experts able to provide information or technical advice to NAFTA committees, working groups and other NAFTA bodies;
- (d) considering on an ongoing basis the environmental effects of the NAFTA; and
- (e) otherwise assisting the Free Trade Commission in environment-related matters.

In addition, the NAAEC provides for enforcement measures linked to NAFTA, as failure to pay a 'monetary enforcement assessment' may justify suspension of benefits under NAFTA (see art. 36).

We distinguish between two main issues. The first is cooperative arrangements used to mitigate negative environmental consequences of the FTA. An example can be the case between the EU and China/USA concerning carbon quotas in aviation (see box 9.1 below). The second is cooperative arrangements to enhance cooperation among environmental authorities in dealing with environmental challenges more broadly. The latter cooperative arrangements are in general contained in environmental side agreements.

As to the former cooperative arrangements, we find that they can be of considerable importance to resolve difficult environmental issues, such as those described in box 9.1. In addition to dealing with the case in the context of the FTA, such arrangements may also serve as a means to avoid bringing the cases onto the agenda of the WTO. Depending on the cases to be considered, it may be essential to make sure that such cooperative arrangements – in the case of FTAs normally referred to as commissions or committees – ensure effective representation of environmental perspectives. When we compare the institutional and procedural rules that govern the meetings of such commissions or committees to those of the dispute settlement mechanism, we find, in the FTAs examined for this study, that the latter are far more elaborate and sensitive to environmental concerns than the former. In practice, cooperative arrangements are likely to constitute a more effective means for ensuring effective integration of environmental concerns than the dispute settlement mechanism. We therefore recommend that greater emphasis be placed on defining the mandate, procedures and institutional

issues regarding the commission(s) or committee(s) to be established under the Sino–Norwegian FTA. Inspiration for such provisions may be found in the provisions of the NAAEC quoted above.

Box 9.1 Airlines and EU carbon quotas

Airlines advised to rally against EU plan

Last Updated(Beijing Time):2011-11-14 10:50

A new report has advised China's airlines to form a coalition and launch a lawsuit against a European Union plan that requires global airlines to buy carbon emission permits.

China should start legal procedures against the plan as soon as possible, and take actions in assembling submissions by aviation associations and enterprises in the lawsuit, said the report published Friday by the Social Sciences Academic Press under the Chinese Academy of Social Sciences.

The EU plan requires airlines flying to or from its territory from January 2012 to buy permits for 15 percent of the carbon emissions they generate during the entire flight, with large fines for noncompliance.

The EU plan was challenged by US airlines in the European Court of Justice in July for breaching international law.

The report follows comments Tuesday by an official from China's aviation regulator supporting a resolution adopted by the Council of the International Civil Aviation Organization, which opposes the EU plan to force non-EU airlines to take part in the bloc's Emissions Trading Scheme.

The China Air Transport Association (CATA) will join several major Chinese airlines to file a lawsuit against the EU over the issue, CATA Deputy Secretary General Chai Haibo was quoted as saying by China Economic Weekly in a story published Monday.

In addition to its ambition to raise its airlines' competitiveness, other core interests were behind the EU plan, according to the report titled "Green Book of Climate Change: Annual Report on Actions to Address Climate Change (2011)." The bloc seeks more say in setting the agenda as the world strives to combat global climate change, it said.

While proposing that Chinese airlines oppose the EU plan, the report suggested that China's aviation industry develop in a more sustainable manner through researching and utilizing bio-fuels, improving the efficiency of airplane engines and better arranging airline routes.

Source:Xinhua

As to arrangements to enhance cooperation among environmental authorities to deal with environmental challenges more broadly, we refer to our conclusions in section 6.1. We focus on arrangements that facilitate future environmental cooperation to be initiated and organized under the agreement. Such an institutional arrangement must be designed so as to take into account interaction with existing bilateral environmental cooperation. We have considered whether such an arrangement should be made part of the FTA itself (e.g. in a separate chapter of the FTA or as a sub-committee), or be organized under a separate environmental agreement. We consider that the degree of independence from other institutions under the FTA will be the main distinguishing factor. The respective advantages and disadvantages of different degrees of independence will depend on the tasks to be assigned to the institutional arrangement. Given the complexities of such matters and the limited information available, we lack a sufficient basis for further consideration of these issues.

9.2 Fast track for environmental goods and services

Current barriers to trade and investment in environmental goods and services

Both China and Norway have thriving environmental industries. The environmental industry in China has been estimated to consist of 11,623 firms, with a turnover of 457 billion yuan and employing 1.59 million persons in 2004 (Hu Tao, 2011). International export from China of green goods from this environmental industry was estimated to USD 6.19 billion (about 40 billion yuan). The export of services was much lower, about USD 0.05 billion. The Norwegian environmental industry has been estimated to consist of 2015 firms in 2008, with a turnover of NOK 167 billion and employing 41,000 persons (Menon, 2010). To our knowledge, reliable estimates of exports from the Norwegian environmental industry do not exist.

Several sources discuss barriers to trade and investment in environmental goods and services. According to the Feasibility Study ‘favorable conditions’ will cause trade to grow. This would seem to imply that the Feasibility Study is of the opinion that significant barriers currently exist, but the text is vague as to what the barriers are (Feasibility Study, p. 63):

Since the accession to the WTO, China has opened all categories of environmental services except environmental quality monitoring and pollution source inspection. ... Several Norwegian businesses in the environmental services sector are already engaged in the Chinese market, providing various services such as advanced solutions enabling recovery and recycling of materials, biological wastewater treatment for both the industrial and municipal sectors. There is, moreover, reason to believe that given favourable conditions, the trade of environmental services between Norway and China has potential to grow substantially.

According to Hu Tao (2011) there are three main barriers to the development of the environment industry *in China*: Intellectual property rights (IPR), low demand for environmental goods and services, and what he denotes ‘imperfect market due to demand side monopoly’. He further notes that the problem of IPR is that most firms in the environment industry are small or medium-sized enterprises (SMEs) that cannot afford to buy foreign-owned patents. This hampers the development of the Chinese environment industry. Below we discuss the question of IPR in relation to biodiversity and clean energy. While Hu Tao (2011) reflects on the demand side there is of course also a supply side to IPRs. It provides an incentive to developers of intellectual property. The challenge with respect to IPR is to balance the concerns of demand and supply.

The second barrier mentioned by Hu Tao (2011) is low demand for environmental goods. He associates the low demand with the fact that the polluter pays principle is not followed: ‘Pollution costs are not being internalized due to poor environmental enforcement of laws and regulations.’ To the extent that environmental enforcement selectively targets foreign firms, the issue is potentially of interest to a Green Trade

Agreement. If so, the question may be how to avoid unfair discrimination (rather than how to extend the favours implied by ‘fast-track’). To the extent that environmental enforcement is generally weak, and/or environmental regulation is weak, fast-tracking is not the answer. If a bilateral trade agreement can provide an answer at all, it would have to be regulations to compensate for the weak environmental regulation.

The third barrier mentioned by Hu Tao, ‘imperfect market due to demand side monopoly’, is a reference to the claim that public procurement at the regional and local level in China is not always decided on merit: ‘The competitors race up to their necks by good relations with the municipal government rather than technology and cost-effectiveness.’ Similar concerns have been raised by the 2010 WTO Trade Policy Review (see section 6.5). While public procurement is outside our scope, fast-track arrangements may alleviate this problem.

ECON (2008) has discussed the question of barriers to the development of the environment industry *in Norway*, and concludes as follows:

... a FTA could benefit Norwegian–Chinese environmental technology exchange through: (1) highlighting institutional complications in the Chinese system; (2) through promoting connections between Norwegian firms, Chinese counterparts and Chinese authorities (3) and finally through contributing to awareness of environmental challenges and management thereof.

This conclusion is based on interviews with Norwegian environmental technology firms active in China and with the Norwegian Science and Technology Councillor (Innovation Norway) at the time. A quantitative assessment of the importance of these barriers is not given, but the collective experience of the firms is that the barriers are quite high.¹⁰⁷ The first item mentioned (‘institutional complications in the Chinese system’) may refer to some of the same issues as raised by Hu Tao under the heading ‘imperfect market due to demand side monopoly’. Fast-tracking environmental goods and services may alleviate the problems mentioned.

In chapter 3 above, we referred to quantitative assessments of non-tariff barriers. In particular the World Bank Ease of Doing Business Surveys indicate that Norwegian procedures for export and import seem to be some of the least cumbersome in the world, whereas the Chinese procedures are about the global average. Norwegian procedures require seven days of document preparation and handling, and 729 USD for a standardized cargo of goods to be imported to Norway. In China the same procedure requires 24 days and 545 USD. While this applies to standardized cargo it may indicate the situation for environmental goods and services as well. See section 3.1 for further discussion.

In the following, we assess selected options for ‘fast-tracking’ environmental goods and services. By ‘fast-tracking’ we refer to measures to

¹⁰⁷ The firms were Aker Solutions, Elkem, Green Clean Energy, Malthe Winje, Pöyry Environment China and StatoilHydro.

facilitate market access for such goods and services, including trade facilitation, streamlining of technical regulations, institutional measures, and measures to reduce costs of import. Due to the differences between goods and services, we will deal with these separately.

Assessment of options for fast-tracking environmental goods

Measures to fast-track environmental goods depend on the possibility of easily *identifying and separating out* such goods. There is no commonly agreed customs classification of environmental goods. As indicated in section 6.5, Norway and China could agree on a list of environmental goods based on existing HS classification. Norway is among the proponents of the ‘153-list’, but has not presented individual proposals for goods to be placed on the list.¹⁰⁸ Hence, we may assume that Norway is flexible with regard to the specific content of a list of environmental goods, provided that such a list is limited to goods that are ‘particularly important – even critical – for environmental protection, and workable from a customs facilitation perspective’.¹⁰⁹ The assessment of Hu Tao (2011) indicates that China might prefer a more extensive list of products, a list that could perhaps include goods that might be questionable in light of the basic requirement indicated in the proposal supported by Norway.

China and Norway could agree on a list during negotiations of the FTA, or could agree to commence negotiations of a list. As a minimum, such a list should include goods that are recognized as important to ensure technology transfer in the context of MEAs. Moreover, China and Norway should agree on basic conditions that should be fulfilled for a product to be listed. The latter is no easy task, as has been shown by the extensive discussions of this issue referred to in section 6.3. In our opinion, the negotiators should consider the possibility of reaching agreement on a list of criteria to be considered on a case-by-case basis. A separate procedure could be established whereby proposals for goods to be listed could be submitted to a group of experts which should carry out the assessment and recommend whether the product should be listed or not. In light of product development and new knowledge of environmental problems, it would also be necessary to establish procedure for de-listing products no longer regarded as sufficiently environmentally beneficial. We recommend that the institutional and regulatory framework to be established for listing products be made flexible in order to facilitate listing and de-listing of products, while at the same time ensuring a reasonable level of predictability and access to justice for relevant market actors. The latter will be particularly important in cases concerning de-listing.

The next issue is to establish *relevant measures to ensure fast-tracking* of environmental goods. As indicated above (section 5.1) the EFTA–Peru FTA (see arts. 2.4, 2.5 and 2.10, as well as annex VII) can be used as a starting point for considering measures to facilitate trade between China and Norway. We have also identified several other initiatives that could

¹⁰⁸ See JOB(09)/132 of 9 October 2009.

¹⁰⁹ Ibid. at 4, para. 11.

be relevant to facilitate trade in environmental goods (see sections 5.1 and 6.5). Here it should be noted that Norway's obligations under the EEA Agreement limit the options available when negotiating facilitated market access for goods under bilateral FTAs, in particular in the areas of technical barriers to trade and sanitary and phytosanitary measures.

Against this background, we consider that fast-tracking could involve the following measures:

- Elimination of tariffs on environmental goods (in practice relevant to China only);
- Implement measures to secure increased trade facilitation, as a minimum those indicated in the most recent consolidated negotiating text of the WTO, with a particular focus on: facilitated access to 'advance rulings' (negotiating text art. 3), reduction to a minimum of fees and charges imposed on or in connection with importation and exportation (art. 6), facilitated release and clearance of environmental goods (art. 7), reduction of formalities and documentation requirements (art. 10.2), increased use of international standards where relevant (art. 10.3), elimination of pre-shipment inspection requirements (art. 10.5), and extended right of temporary admission of goods (art. 10.10);¹¹⁰
- Measures to encourage trade in environmental goods, in particular facilitated access to export credit¹¹¹ and other forms of lawful and generally accepted forms of support to facilitate export (the latter could take as their point of departure obligations to ensure technology transfer according to MEAs);
- An undertaking not to impose countervailing and anti-dumping duties on environmental goods;¹¹²
- Ensure that communications and consultations regarding import and export of environmental goods are given high priority in relevant institutions established under the FTA.

We consider it essential that China and Norway agree, during the negotiations of the FTA, on the main modalities for dealing with national measures in a fast-track arrangement. Agreement on these issues might be harder to achieve at a later stage when these modalities would not be considered as part of a broader package deal. However, the specific technical details of the various elements to be included could be left for future clarification.

Assessment of options for fast-tracking environmental services

Measures to fast-track environmental services depend on the possibility of easily *identifying and separating out* such services. Although environmental services are identified as a separate category of services in the Chinese and Norwegian schedules (see sections 6.3, 6.4 and 6.6), the

¹¹⁰ See TN/TF/W/165/Rev.11 of 7 October 2011.

¹¹¹ Both the Norwegian GIEK and the Chinese SINOSURE are members of the Berne Union, see <http://www.berneunion.org.uk/index.html>.

¹¹² See the heading 'Other measures' under section 6.5 above.

question remains whether an agreement on fast-tracking environmental services should be based on these lists. There are four main challenges associated with these lists: (1) the current classification is old and needs to be updated; (2) the lists have been elaborated on the basis of whether the services concern environmental issues, and not whether they contribute to environmental protection; (3) there are numerous services classified elsewhere in the schedules that have the potential of contributing significantly to environmental protection;¹¹³ and (4) there is a close link between environmental goods and services (see section 6.6), so a classification of the latter must take due account of the classification of the former.

Against this background, we recommend that efforts to identify environmental services for the purpose of fast-tracking be de-linked from the classification of environmental services in the schedules, as well as from efforts to reclassify environmental services in the WTO¹¹⁴ and the UN.¹¹⁵ Moreover, we recommend that the negotiators consider whether the modalities of identifying relevant environmental services could be based on an approach similar to that proposed for environmental goods above.

The next issue is the establishment of *relevant measures to ensure fast-tracking* of environmental services. Trade barriers that are relevant to trade in services differ considerably from those relevant for trade in goods. Two main issues need to be dealt with when considering fast-tracking environmental services: (1) the range of national measures to be regulated, and (2) the modes of supply of services to be addressed.

As to the former, we note that border measures are generally insignificant in relation to trade in services. Hence, fast-tracking will need to focus on other national measures, such as market access regulation, domestic regulation and taxes, subsidies, government procurement, and monopolies. We acknowledge that limiting states' possibility to make use of such national measures in relation to environmental services may raise politically sensitive issues. Against this background and in light of the limited progress achieved in the WTO and bilateral trade negotiations regarding disciplines on 'domestic regulation' (art. VI of GATS), recognition (art. VII of GATS), monopolies (art. VIII of GATS), government procurement (art. XIII of GATS), and subsidies (art. XV of GATS), we consider that measures to fast-track environmental services should as a starting point focus on market access (art. XVI of GATS) and national treatment (art. XVII of GATS). If we were to prioritize among other

¹¹³ One study concerning climate-friendly technologies (Kim 2011: vii) finds that: "Complementary services of climate change mitigation technologies" that cut across multiple key mitigation sectors identified by the Intergovernmental Panel on Climate Change (IPCC) – i.e. energy supply, transport, buildings, industry, agriculture, forestry and waste – largely fall into the following Centralized Product Classification (CPC) groups: other professional, technical and business services; construction services; and sewage and waste collection treatment and disposal and other environmental protection services."

¹¹⁴ See WTO doc. S/C/W/320.

¹¹⁵ CPC version 2, see <http://unstats.un.org/unsd/cr/registry/cpc-2.asp>.

national measures to be addressed, we would recommend that recognition and monopolies be considered.

As to the modes of supply to be addressed, one recent report on facilitation of trade in services complementary to climate friendly technologies (Kim 2011: vii) concludes as follows:

A review of major trading countries' specific commitments to liberalize trade in these services shows that only a handful of the countries have made a full commitment. The principal Modes of supply for the complementary services of climate change mitigation technologies are 'commercial presence' (Mode 3) and 'movement of natural persons' (Mode 4). Yet these Modes of supply appear to be largely limited, as the majority of countries concerned have put specific as well as horizontal limitations on them. Members' commitments on 'Cross-border supply' (Mode 1) across all three CPC groups are becoming increasingly important for the facilitation of trade in these services, as the provision of services through Mode 1 is increasing together with new channels of electronic supply. Yet the majority of trading countries concerned left this Mode of supply unbound, as they considered it inapplicable, particularly in the case of construction services.

We note that both China and Norway have undertaken extensive commitments in relation to modes 2 and 3 of supply (consumption abroad, and commercial presence). Moreover, both states have mainly refrained from undertaking commitments in relation to mode 1 of supply (cross-border supply) due to 'lack of technical feasibility', and that there seems to be considerable willingness to reconsider this issue. Some concerns regarding national security and jurisdiction need to be taken into account in the context of such reconsiderations. The most controversial issue remains mode 4 of supply (presence of natural persons), mainly because of employment concerns and immigration control. We also observe that mode 4 of supply is likely to be a high priority from the Chinese side.

We thus recommend that particular attention be paid to facilitating modes 1 and 4 of supply. In our view, the extent to which progress can be made with respect to these two modes of supply remains questionable. There are also uncertainties as to the extent to which it will be practicable to establish separate approaches to such modes of supply for those environmental services that are selected for fast-tracking. These issues will need to be further studied by negotiators.

As in relation to environmental goods, we consider it essential that China and Norway agree, during their FTA negotiations, on the main modalities for dealing with national measures in a fast-track arrangement. Achieving agreement on these issues might be harder at a later stage when these modalities would not be seen as part of a broader package deal. However, as noted, the more specific technical details of the various elements to be included could be left for future clarification.

9.3 Export controls of goods

In view of the Chinese use of export controls, which from China's perspective is justified to a considerable extent on the basis of environmental considerations (see section 3.2), we consider it likely that the flexibilities of introducing such measures will appear on the agenda of the trade negotiations between Norway and China. One general discussion concerns the extent to which environmental objectives in relevant sectors should be sought through export restrictions or, alternatively, through domestic regulation of the relevant sectors.¹¹⁶ Under the WTO, the general approach to this issue has been that trade measures, such as export restrictions, should not be taken if less trade-restrictive measures are reasonably available.¹¹⁷ One formulation of particular interest is the footnote to art. 5.6 of the SPS Agreement:

... a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

We also note art. XX(g) of GATT, which requires that, in order for an export restriction to be lawful, it must be 'made effective in conjunction with restrictions on domestic production or consumption'.

Above, we have pointed out that some Norwegian FTAs introduce additional controls on the use of export restrictions (section 5.1). In addition, as a party to the EEA Agreement, Norway is closely related to the policy of EU in this respect. In relation to rare earths: 'the EU proposed trade disciplines on export restrictions (including bans, quotas, duties and non-automatic export licences) in all relevant negotiations, bilateral or multilateral (for example in the Free Trade Agreement with Korea and in provisions on export duties on a series of raw materials, including wood, in the context of Russia's WTO accession).'¹¹⁸

Further, some export restrictions have been introduced by MEAs. Such export restrictions can be prescribed primarily in order to protect the environment of the country of destination (export of hazardous chemicals and waste, nuclear materials, and genetically modified organisms),¹¹⁹ the global environment (protection of the ozone layer and against nuclear

¹¹⁶ On the role of export controls as compared to other trade measures, see *World Trade Report 2010*, section D.

¹¹⁷ Such an approach has been promoted in case law related to the 'necessity requirement' in art. XX of GATT, see WT/CTE/W/203.

¹¹⁸ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: *Tackling the Challenges in Commodity Markets and on Raw Materials*, COM(2011) 25 final at 12.

¹¹⁹ See the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998), the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2000), and the Stockholm Convention on Persistent Organic Pollutants (2001).

disasters),¹²⁰ or the environment of the country of origin (endangered species and natural resources management).¹²¹

In the following, we will consider: (1) the need for flexibilities that go beyond those available under the general exceptions of the FTA (see section 5.4); (2) which options would be available; and (3) whether the inclusion of such additional flexibilities would be in accordance with art. XXIV:8(b) of GATT.

(1) In light of Norway's adherence to many instruments that seek to control exports for environmental reasons, we assume that Norway recognizes the legitimacy of such measures. Norway's interest seems to us to be related mainly to ensuring environmental protection in developing countries. However, we also observe that several Norwegian FTAs include additional controls on export restrictions (see section 5.1).

When considering the need for flexibilities in an FTA between Norway and China, we should distinguish between situations in which the countries agree bilaterally or multilaterally to the use of export controls, and situations in which export controls are imposed unilaterally by one country. In the former case, it is unlikely that one country will challenge the other country's resort to export controls as long as such measures are in accordance with the agreement. We therefore consider that an FTA between Norway and China will not need to include additional flexibilities in relation to such measures.

The question remains: would be a need to include additional flexibilities in relation to *unilateral* decisions to control export? The starting point is that the country controlling export in such cases must fulfil the following three conditions in order to justify the measure under the general exceptions (see art. XX(g) of GATT):

- The measure must be related to (interpreted in case law as equivalent to 'primarily aimed at') the conservation of an exhaustible natural resource;
- It must be made effective in conjunction with restrictions on domestic production or consumption (Interpreted in case law as a requirement of 'even-handedness' in the imposition of restrictions upon the production or consumption);
- It must not constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade.

Case law related to art. XX of GATT indicates that these requirements should be practised relatively restrictively, and thus that the country taking the export control measure has a significant burden of proof. For

¹²⁰ Montreal Protocol on Substances that Deplete the Ozone Layer (1987), and Treaty on the Non-Proliferation of Nuclear Weapons (1968).

¹²¹ Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973), International Tropical Timber Agreement (2006). See also the Voluntary Partnership Agreements between the EU and selected countries: <http://ec.europa.eu/environment/forests/flegt.htm>.

example, in the case China – Measures Related to the Exportation of Various Raw Materials, the panel found that:

Since a domestic restriction on production affects both domestic and foreign users of the resources, the Panel is of the view that China has not demonstrated that its regime for refractory-grade bauxite and fluorspar will not lead to an uneven-handed imposition on foreigners. Although there is no textual basis requiring identical treatment under Article XX(g), it is difficult to see how – if *no* similar or parallel restrictions are imposed at all on domestic users or on domestic consumption and all limitations are placed upon the foreign consumers *alone* – the export restrictions can be considered even-handed. [emphasis in the original]¹²²

The panel report has been appealed, and the panel's reasoning regarding art. XX(g) is likely to be a significant topic on appeal. One important issue in this case is how to deal with arguments based on the need to protect infant industries, the need to promote industrial development to achieve sustainable development objectives, and the need to secure access to raw materials for domestic industries.

Some of the Chinese FTAs have integrated some flexibility to implement export controls through listing of measures in annexes, but China has made only limited use of such flexibilities.¹²³ In light of the above case against China, we find it likely that flexibilities regarding export controls will be higher on the agenda of Chinese authorities in their bilateral negotiations than previously.

(2) There are four main options that could be considered in an FTA between Norway and China: (a) relaxation of the conditions for invoking the general exception concerning exhaustible natural resources; (b) introduction of a separate exemption regarding export controls for environmental purposes; (c) an interpretative note to the relevant general exception explaining the intentions of the parties as to its application to export controls; and (d) an annex to the FTA in which the parties may list *general* and/or *specific* exceptions.

In our view, option (a) would be far-reaching and would go beyond the specific needs associated with export restrictions, since it would be available to all categories of trade restrictions. Moreover, this option would raise the most significant issues as regards compatibility with art. XXIV:8(b) of GATT. Hence, we will not consider this option in further detail.

Option (b) would be limited to export controls, and thus more relevant to the specific needs identified above than option (a). It could also give rise

¹²² WT/DS394/R, para. 7.465.

¹²³ The most extensive use is in Annex 1 of the FTA with Costa Rica, wherein China listed '(a) measures related to the protection of the environment and natural resources pursuant to applicable domestic law and the provisions established in Article 159 (General Exceptions) of this Agreement; and (b) actions authorized by the Dispute Settlement Body of the WTO.'

to important issues in relation to art. XXIV:8(b) of GATT, but would be less controversial due to its limited scope. One question is whether this option would provide a balanced approach to the interests regarding the availability of export controls. This would depend primarily on the conditions that would have to be fulfilled in order to invoke the exception. Moreover, the rights and duties of Norway and China under the WTO Agreement would not be affected by such an exception. Hence, one of the countries could bring a case to the WTO, should it consider that the other party is making too extensive use of the exception. This illustrates the complex issues that might arise in relation to the WTO Agreement if China and Norway in their bilateral relations agree on exceptions more far-reaching than those of the WTO Agreement. In our view, there is a distinction to be made between general exceptions in FTAs that in essence specify the parallel provisions of the WTO Agreement, and exceptions that come in addition to those of the WTO Agreement. Option (b) would fall in the second category. Against this background, and in light of the practice in Norwegian FTAs of controlling the use of export restrictions, we will not consider this option in further detail.

Options (c) and (d) would, in our view, merit further consideration during negotiations. An interpretative note (option c) would not change the rights and obligations of Norway and China according to existing obligations under the WTO Agreement, and could provide additional guidance and predictability on how to apply the relevant exception. Option (d) would go even further in providing predictability to relevant actors. It would also ensure that the respective interests of Norway and China could be taken appropriately into account when deciding to list or de-list measures in the annex. Whether listing should be available for general rules or specific measures or both,¹²⁴ as well as procedures for listing and de-listing, would need to be considered in further detail during negotiations. Consideration could also be given to combining options (c) and (d).

(3) As to compatibility with art. XXIV:8(b) of GATT, we find it unnecessary to further consider options (a) and (b). In our view, options (c) and (d) should be seen as specifications of which measures are 'permitted under Articles ... XX' of GATT. In our view, these options do therefore not raise noteworthy issues in relation to art. XXIV:8(b).

In conclusion, we find that export controls may, in some situations, constitute an important means for promoting environmental interests. Further, that in most cases, export controls will generate more diverse resource supplies in the long run. Here we quote the *World Trade Report* (2010: 6):

Certain natural resources, particularly fuels and mining products, can be subject to extreme price volatility. This is a source of uncertainty that adversely affects investment and production decisions.

¹²⁴ See *ibid.*

9.4 Intellectual property rights (IPR)

As indicated in section 6.5, we will consider the following issues regarding intellectual property rights: (1) a reference to general objectives and principles to be considered when applying the IPR rules of the FTA; (2) a provision to prevent practices which constitute abuse of intellectual property rights by rights-holders or unreasonably restrain competence or adversely affect or limit technology transfer; and (3) the relationship between IPR and genetic resources in light of the Convention on Biological Diversity.

(1) The TRIPS Agreement sets out general objectives and principles in articles 7 and 8:

Article 7 Objectives

The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

Article 8 Principles

1. Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.
2. Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.

The question here is whether there is a need to further elaborate such objectives and principles in order to promote environmental interests. Except for issues relating to genetic resources (to be addressed below), the objectives and principles that are included in relevant provisions of Chinese FTAs do not explicitly promote environmental interests or go beyond the objectives and principles set out in the TRIPS Agreement (see section 6.5).

Article 7 of the TRIPS Agreement refers to technology development, dissemination and transfer in order to promote 'social and economic welfare'. This reference thus focuses on only two of the pillars of sustainable development, omitting the third pillar – *the environment*. There is a significant focus on transfer and dissemination of technology in order to enhance the ability of developing countries to protect the environment. As indicated elsewhere in this report, China has expressed concerns that intellectual property rights (IPRs) are or could be applied so as to prevent the dissemination and transfer of technology important to

protect the environment (see sections 6.5, 9.5 and 9.6).¹²⁵ Moreover, we note that effective technology dissemination and transfer is an essential element under most MEAs, and that there are important problems associated with the implementation of such provisions.¹²⁶ While including a reference to the environment in provisions on objectives and principles governing IPRs may not have major short-term effects, it could have more significant effects in the medium or longer term. Our analysis of parallel issues in section 9.1 above is of relevance in this context.

(2) One concern of countries that are primarily ‘consumers’ of IPR is that rights-holders could limit their access to the patented goods or technologies. One recent study finds that:

Whereas overall there is little CET [clean-energy technologies] out-licensing activity towards developing countries among the survey participants, the general level of such activity is no lower than in other industries. Moreover, findings from other industries indicate that there are a number of hurdles to overcome in out-licensing due to factors such as the transaction costs involved, identifying a suitable partner and the right licensing conditions (i.e. pricing and the geographical or exclusive scope of the agreement). Indeed, the willingness to out-license is often much higher than the actual level of licensing. As the results of the present survey show, this trend seems to be even greater for CETs.

This overall difficulty with markets for licensing may create particular challenges in the case of CETs, where rapid diffusion is needed. Thus there is a need for improving market conditions and encouraging licensing in the context of efforts to enhance technology transfer to developing countries. For the time being, where licensing agreements have been entered into, the main beneficiaries are actors in China, India, Brazil and Russia.¹²⁷

There are thus reasons to question the extent to which problems of access to patented goods or technologies can be ascribed to ‘abuse’ of IPRs. Moreover, there are reasons to question whether China will be among the countries that will suffer from limited access to patented goods and technologies.

We note that according to art. 66.2 of the TRIPS Agreement: ‘Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to

¹²⁵ There may be numerous alternative reasons for failure to achieve effective technology transfer, see e.g. Painuly and Fehnann 2002.

¹²⁶ See e.g. Zhong 2010; UNEP, EPO and ICTSD: Patents and clean energy: bridging the gap between evidence and policy. Final report (2010) (available at [http://documents.epo.org/projects/babylon/eponet.nsf/0/cc5da4b168363477c12577ad00547289/\\$FILE/patents_clean_energy_study_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/cc5da4b168363477c12577ad00547289/$FILE/patents_clean_energy_study_en.pdf)); and UNEP: Technology Transfer and Cooperation under the Convention on Biological Diversity. Towards more effective implementation (2010) (available at <http://www.unep.org/dec/PDF/TechnicalTransferCBD.pdf>).

¹²⁷ UNEP, EPO and ICTSD, *ibid.* at 9.

enable them to create a sound and viable technological base.’ As China is not classified as a least-developed country, this provision does not apply to the relationship between Norway and China. Moreover, as Chinese enterprises have become extensive users of IPRs, we are unsure about the extent to which there is need for general arrangements to encourage technology transfer. Nevertheless, we find that Norway and China may have joint interests in cooperation with a view to developing and transferring environmental technologies in order to promote effective environmental protection.

Against this background and from an environmental perspective, we do not find that there is any need to include provisions regarding abuse of IPRs in the FTA. We do find, however, that negotiators should consider the usefulness of including IPR-related mechanisms that may encourage development and transfer of environmental technologies (see sections 9.5 and 9.6 below). In this context, we note that China and other developing countries argue that IPR protection of 20 years (as is currently the case in TRIPS and WIPO), is too long, since most environmental technologies will be outdated in the course of 20 years.

(3) The relationship between IPR and genetic resources has been high on the agenda of Norway as a main supporter of international processes to ensure effective benefit-sharing from agricultural and wild genetic resources.¹²⁸ The main starting point for the debate over IPR and genetic resources is article 27 of the TRIPS Agreement:

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. ...

3. Members may also exclude from patentability: ... (b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. ...

Norway has ratified the European Patent Convention in 2007, and is thereby part of the European patent system. One main consequence is that there are far fewer patent applications to the Norwegian Industrial Property Office than previously, and thus that the policies of Norwegian patent authorities have less reduced importance.

Nevertheless, we consider that there is a potential for Norway and China to contribute to reducing the tensions between the effective protection of IPRs, patents in particular, and efforts to preserve and protect biodiversity and ensure the sharing of benefits from the use of genetic resources.

¹²⁸ The most significant instruments are the International Treaty on Plant Genetic Resources for Food and Agriculture (2001) and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (2010).

Many of China's FTAs include provisions dealing with these issues. A 'weak' approach can be found in art. 165 of the FTA with New Zealand: 'Subject to each Party's international obligations, the Parties may establish appropriate measures to protect genetic resources, traditional knowledge and folklore.' In addition, this FTA contains a provision on cooperation and capacity building (art. 164). China's FTAs with Costa Rica and Peru can be characterized as those that are most advanced as regards biodiversity-related interests. Article 111 of the Costa Rica FTA refers to the CBD, and to future cooperation in order to implement benefit sharing, and art. 112 on intellectual property and public health refers to relevant WTO decisions. More specifically, it states that when 'interpreting and implementing the rights and obligations under this Chapter, the Parties shall ensure consistency with' the 2001 Doha Declaration on the TRIPS Agreement and Public Health.

Among Norway's FTAs, the one with Peru contains the most elaborate provision in art. 6.5:

1. The Parties reaffirm their sovereign rights over their natural resources and recognise their rights and obligations under the Convention on Biological Diversity with respect to access to genetic resources and to the fair and equitable sharing of benefits arising out of the utilisation of these genetic resources.
2. The Parties recognise the importance and the value of their biological diversity and of the associated traditional knowledge, innovations and practices of indigenous and local communities. Each Party shall determine the access conditions to its genetic resources in accordance with the principles and provisions contained in applicable national and international law.
3. The Parties recognise past, present and future contributions of indigenous and local communities and their knowledge, innovations and practices to the conservation and sustainable use of biological and genetic resources and in general the contribution of the traditional knowledge of their indigenous and local communities to the culture and economic and social development of nations.
4. The Parties shall consider collaborating in cases regarding non compliance with the applicable legal provisions on access to genetic resources and traditional knowledge, innovations and practices.
5. According to their national law, the Parties shall require that patent applications contain a declaration of the origin or source of a genetic resource, to which the inventor or the patent applicant has had access. As far as provided in their national legislation, the Parties will also require the fulfilment of prior informed consent and they will apply the provisions set out in this Article to traditional knowledge as applicable.
6. The Parties, in accordance with their national laws, shall provide for administrative, civil or criminal sanctions if the inventor or the patent applicant willfully make a wrongful or

misleading declaration of the origin or source. The judge may order the publication of the ruling.

7. If the law of the Party so provides:

(a) access to genetic resources shall be subject to the prior informed consent of the Party providing the genetic resources; and

(b) access to traditional knowledge of indigenous and local communities associated to these resources shall be subject to the approval and involvement of these communities.

8. Each Party shall take policy, legal and administrative measures, with the aim of facilitating the fulfilment of terms and conditions for access established by the Parties for such genetic resources.

9. The Parties affirm and recognise their existing rights and obligations with respect to each other under the International Treaty of Plant Genetic Resources for Food and Agriculture of the Food and Agriculture Organization.

10. The Parties shall take legislative, administrative or policy measures, as appropriate, with the aim of ensuring the fair and equitable sharing of the benefits arising from the use of genetic resources or associated traditional knowledge. Such sharing shall be based on mutually agreed terms.

While this provision covers important issues, we find that it is couched mainly in 'soft' language: there is a possibility of heightening its effectiveness by strengthening the language and adding procedural and institutional mechanisms. In our view, this provision offers a good starting point for negotiations with China.

9.5 Case study 4 – Clean energy

According to the Pew Center (2011) China in 2010 invested 30% more than the second country (Germany) and 60% more than the third country (United States) in new renewable energy. In recent years China has consistently invested more in renewable energy than any other country.

Following this investment spurt, China has emerged as the country with the highest capacity of hydro, mini-hydro and wind energy, with capacities supported by strong and growing industries. For instance, four of the global top ten wind turbine manufacturers are Chinese (GWEC, 2010).

Also Norway has considerable renewable energy resources. With some 150 years of experience in the field, the country gets 99% of its electricity supply from hydropower, and electricity is used for a wide range of purposes. As in China, hydropower in Norway is backed up by a significant industry with competence in engineering design, turbine generation, construction, etc.

Norway also has considerable wind-power potential, but exploitation here is in its infancy. Over time Norway may seek to develop this potential both onshore and offshore. For offshore wind the technologies are less mature, but China and Norway may join together to develop these technologies further. A green trade agreement might stimulate R&D, investment and trade in clean energy.

These facts suggest that China and Norway may cooperate in a green trade agreement to further develop clean energy. As to hydro, Norway's potential is mainly exploited already, so the investment potential lies in China: here Norwegian competence and industry could contribute. As to onshore wind, there are potentials in both countries. As the industry is in China, Chinese competence and industry might contribute to building onshore wind farms in Norway.

For these potentials to materialize it is important that Norwegian firms are allowed to compete for tenders in China, and that Chinese firms are allowed to compete in Norway. Firms and consortia should be allowed to establish arrangements appropriate to the relevant initiative. Trade in goods and services related to the investments should face as few obstacles as possible, and transboundary movement of labour and capital likewise.

Exporting advanced technology gives rise to issues of intellectual property rights (IPRs). Traditionally, at least from the perspective of the exporting nation, the question has been how to ensure that the importing country pays for the use of intellectual property. Now, in the context of climate change negotiations, the issue of IPR has been addressed from the opposite angle. Under the heading of 'technology transfer' the question is how developing (importing) countries can access state-of-the-art clean technology.

As mentioned in section 9.4, these different perspectives on IPR show up in the clean-energy sector. On the one hand, there is an urgent need to develop new renewable technology solutions that are cheaper and more reliable than today. This will require time-consuming and costly R&D, which needs a payment in order not to stall. Patents and intellectual property rights are the traditional answer. On the other hand, there is an equally urgent need for the immediate dissemination of improved technologies as they are developed. This will require low barriers to adoption, including low prices to consumers. Developing countries, among them China, stress that IPR is a barrier. And as noted in section 9.4, transaction costs represent another barrier.

The basic idea of technology transfer as understood in climate negotiations is for governments or their representatives (e.g., funds) in developed countries to act as middlemen that purchase technology from developed-country firms, thus honouring IPR and stimulating innovation; and transfer technology to developing countries at discounted prices, or gratis. There is precedent for such a practice (or at least a similar one, with firms and governments sharing the bill) from the pharmaceutical industry in the case of HIV and other medicines to Africa. In the context of climate change, developed countries meeting in Copenhagen 2009 indicated their willingness to contribute USD 100 billion annually from

2020 for climate adaptation and mitigation, including technology transfer/IPR.¹²⁹

While these are global initiatives, an FTA between China and Norway should include reference to the issue and should not include provisions that unduly reduce the scope for export of advanced clean-energy technologies. We also recommend that negotiators should, when considering institutional arrangements under the FTA, explore the possibility of establishing a forum where disagreements about breach of IPRs could be discussed constructively and practical solutions sought.

9.6 Case study 5 – Carbon capture and storage (CCS)

Carbon capture and storage is a key technology for fighting climate change. According a recent IEA study, CCS will contribute more than any other technology to reaching global carbon emission goals by 2050 (IEA, 2010). The IEA finds that achieving carbon emission goals without CCS would be 70% more expensive.

China is expected to play a key role in the deployment of CCS technologies. The IEA study suggests that 600 facilities should be built in China by 2050, more than in any other country. Also Norway is interested in CCS, and has initiated a significant research and development programme. Among the stated aims of the programme is to contribute to the global accumulation of knowledge of the technology and stimulate its adoption worldwide.

Norwegian R&D here focuses on post-combustion CCS, whereby a chemical solvent absorbent such as monoethanolamine is added to the flue gas in order to release the CO₂. The advantage of this method is that it can be retrofitted on traditional fossil-fuel power plants. China has recently installed far more fossil fuel power plants than any other country, with more to come over the next few years. Post-combustion technology seems essential if China is to live up to IEA expectations.

At present there is one major CCS demonstration plant in China, and about ten minor demonstration plants: thus, precedents exist for joint development and implementation of CCS technology between China and Norway. Such a joint programme would most probably involve trade, investment and research in green goods and services in an integrated whole. An FTA could conceivably facilitate cooperation on CCS by allowing the necessary goods free passage across borders; further, it might allow free transfer of the specialist labour required for building and operating CCS facilities (visa procedures, work permits), facilitate transfer of IPR (see above), facilitate investment, and facilitate research cooperation, including such matters as research visits and toll-free transfer of research equipment.

¹²⁹ For more on technology transfer in practice and the many contentious issues that arise (including resale of modified technologies back to developed countries) see e.g., Alfsen et al. 2009.

Tables, figures and boxes

Tables

Table 1.1	Impacts of mode 1 – 4 commitments for Norwegian mining
Table 3.1	Export of services from Norway to the world, and to China. USD billion
Table 3.2	Imports of services to Norway from the world, and from China. USD billion
Table 3.3	Average applied MFN import tariffs per main category, %
Table 5.1	FTA between China and Chile as regards chilled and frozen seafood
Table 5.2	FTA between China and Peru as regards chilled and frozen seafood
Table 8.1	Export of fish from Norway to China, and Norway to the world, NOK million
Table 8.2	Stages of the salmon life-cycle
Table 8.3	Amount of industrial fish required for 4000 tons of Atlantic salmon, guttet with head
Table 8.4	CO ₂ emissions (tons) per ton of salmon exported to China
Table 8.5	Chinese exports and imports of textiles and textile articles, USD billion
Table 8.6	The life-cycle carbon footprint
Table 8.7	Impacts of increasing textile & apparel exports from China to Norway
Table 8.8	Cotton cloth export and direct environmental impacts in 2005
Table 8.9	Norway: Consequences of commitments regarding mining services

Figures

Figure 3.1	Trends in Norwegian imports from China and exports to China, NOK billion
Figure 3.2	Main import items to Norway from China, NOK billion
Figure 3.3	Main export categories from Norway to China
Figure 6.1	Environmental externalities from the micro- to the macro-level
Figure 8.1	Amount of farmed salmon in Norwegian waterways
Figure 8.2	Sold amount of drugs to prevent sea lice
Figure 8.3	Development of sea lice per fish in recent years
Figure 8.4	Industrial fish in salmon feed 2010
Figure 8.5	Elements of the cotton production cycle

Boxes

Box 3.1	Panel Report: China – Measures related to the export of various raw materials
Box 5.1	Possible environmental issues of rice (15 February 2011)
Box 6.1	Definitions of ‘environmental goods’ and ‘environmental services’
Box 6.2	Trade measures against Chinese exports of solar power technologies
Box 8.1	An illustration of substitution in the case of salmon consumption in China
Box 8.2	Provision on Mining and Industrial Cooperation in China’s FTA with Chile
Box 9.1	Airlines and EU carbon quotas

References

- Alfsen, K.; L. Innbjør and H. Vennemo 2009: From confrontation to cooperation. A developed country perspective on the role of developing countries' contribution to technology development and transfer. Paper on file with the authors.
- Bjercke, Bente 2011: Det nye norske gruveeventyret. En tilstandsrapport om møtet mellom gruveavfall og det marine liv. Greenpeace report, November 2011. Available at http://www.greenpeace.org/norway/Global/norway/Milj%C3%B8gifter/Dokumenter/2011/Det%20nye%20norske%20gruveeventyret_interactive.pdf
- CEC 2006: *CEC Impact assessment and project appraisal*.
- Committee on Trade and Environment Special Session 2009: Communication under paragraph 31 (III) of the Doha Ministerial Declaration. JOB(09)/132, 9 October.
- ECON 2008: *Environmental consequences of a Norwegian-Chinese Free Trade Agreement*, ECON Report no. 2008-148
- EFTA 2010: EFTA, Consolidated draft model provisions concerning the environment and labour standards in EFTA Free Trade Agreements, 7 June 2010
- Eskeland, Gunnar S. and Ann E. Harrison 2003: Moving to greener pastures? Multinationals and the pollution haven hypothesis, *Journal of Development Economics*, February 2003, 70 (1): 1–23
- EU 2008: *Trade sustainability impact assessment of the negotiations of a Partnership and Cooperation Agreement between the EU and China*. Final report, August 2008.
- Farhorizon 2011: Breakthrough technologies: For the security of supply of critical minerals and metals in the EU. Available at <http://farhorizon.portals.mbs.ac.uk/Portals/73/docs/FarHorizon%20Minerals.pdf>
- Fauchald, O.K and H. Vennemo 2011: *Environmental impacts of a free trade agreement between China and Norway: Methodological framework*. Report 2011/11, Vista Analysis, Norway. Available at http://vista-analyse.no/themes/site_themes/vista/images/uploads/VA-rapport_2011-11_Sino-Norwegian_FTA-_Methodology.pdf
- Feasibility study (Ministry of Trade and Industry 2008): Norway–China Free Trade Agreement – Joint Feasibility Study. Report, Norwegian Ministry of Trade and Industry. Available at <http://www.regjeringen.no/upload/NHD/Handelsavtaler/Forstudien%20med%20Kina.pdf>
- Fisman, R. and S.-J. Wei 2004: Tax rates and tax evasion: evidence from 'missing imports' in China, *Journal of Political Economy* 112 (2): 471–496.
- Fæhn, T. 2002: The qualitative and quantitative significance of non-tariff barriers: an ERP study of Norway, *Economic Systems Research*, 14 (1): 35–57.
- Gallagher, Norah and Wenhua Shan 2009: *Chinese investment treaties. Policies and practice*, Oxford University Press.
- Geonor 2010: *NGU, NORUT, NTNU and SINTEF: Industriell verdiskaping basert på geologiske ressurser I Nordområdene*, Trondheim. Available at http://www.regjeringen.no/upload/UD/Vedlegg/Nordomr%C3%A5dene/GeoN_or_sluttrapport2.pdf

- GWEC 2010: *Global wind report: Annual market update 2010*. Global Wind Energy Council (GWEC).
http://www.indianwindpower.com/pdf/gwecReport_2010.pdf
- He, Jie 2006: Pollution haven hypothesis and environmental impacts of foreign direct investments: The case of industrial emission of sulfur dioxide in Chinese provinces, *Ecological Economics*, 60 (1): 228–245.
- Havforskningsinstituttet 2010: Risikovurdering – miljøvirkninger av norsk fiskeoppdrett. *Fisken og Havet*, special issue 3–10.
- Hu, Tao 2011: Environmental Impacts of Free Trade Agreement between China and Norway - Promoting Environmental Goods and Services (EGS) in Sino-Norway FTA for demonstration in WTO: from China's perspective. Paper on file with the authors.
- IEA 2010: *Energy technology perspectives*. Paris: International Energy Authority.
- Joint Study 2004: *A joint study report on a free trade agreement between China and New Zealand*. Prepared by the Ministry of Commerce, China, and the Ministry of Foreign Affairs and Trade, New Zealand.
- Kersley, Aaron and Mary Riddel 2010: A further enquiry into the pollution haven hypothesis and environmental Kuznets curve, *Ecological Economics*, 69 (4): 905–919.
- Kim, Joy Aeree 2011: Facilitating trade in services complementary to climate-friendly technologies, ICTSD Global Platform on Climate Change, Trade and Sustainable Energy, Issue Paper No. 15. Available at
<http://ictsd.org/downloads/2011/11/facilitating-trade-in-services-complementary-to-climate-friendly-technologies.pdf>.
- Liu Zhaoyang; Xianqiang Mao, Wei Tang, Tao Hu, Shuqian Yang and An Zeng, 2010: An assessment of China-Japan-Korea Free Trade Agreement's economic and environmental impacts on China. Draft paper on file with authors.
- MacDermott, Raymond 2009: A panel study of the pollution-haven hypothesis, *Global Economy Journal*, 9 (1).
- Menon 2010: Statistikk for energinæringen i Norge. Menon-publikasjon 10/2010. <http://www.menon.no/filestore/INTPOWendeligrapport.pdf>
- Millimet, Daniel and John A List 2004: The case of the missing pollution haven hypothesis, *Journal of Regulatory Economics*, 26 (3): 239–262.
- NGU 2011: *Geological Survey of Norway: Annual Report 2010*. Available at
http://www.ngu.no/upload/Aktuelt/Nyheter%202011/annualreport_2010_webspreads.pdf
- NGU and DM 2011: Norges Geologiske Undersøkelser og Direktoratet for mineralforvaltning: *Mineralressurser Norge. Mineralstatistikk og bergindustriberetning 2010*.
- Norwegian Government's Strategy for the High North (1 December 2006)
English version available at:
<http://www.regjeringen.no/upload/UD/Vedlegg/strategien.pdf>
- OECD 2005: Environmental goods: A comparison of the APEC and OECD lists, ed. Ronald Steenblik. *OECD Trade and Environment Working Paper 2005-04*, OECD doc. COM/ENV/TD(2003)10/FINAL.
- OECD 2006: Environmental Performance Review of China. Conclusions and Recommendations (final), available at
<http://www.oecd.org/dataoecd/58/23/37657409.pdf>

OECD 2007: Environment and Regional Trade Agreements.

Painuly, Jyoti Prasad and Jørgen Villy Fehnann 2002: *Implementation of renewable energy technologies – opportunities and barriers*. Summary of country studies, UNEP Collaborating Centre on Energy and Environment, Risø, Denmark 2002. Available at <http://uneprisoe.org/RETs/SummaryCountryStudies.pdf>

Peters, Glen; J. Minx, C.L. Weber and O. Edenhofer, 2011. Growth in emission transfers via international trade from 1990 to 2008. *Proceedings of the National Academy of Sciences*, 108 (21): 8903–8908.

Pew Center 2011. Who's winning the clean energy race? 2010 Edition. <http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/G-20Report-LOWRes-FINAL.pdf>

Shen, 2006, *To reduce emissions by green trade policy: textile industry study*, Chinese Ministry of Environment report.

Shen, Junyi 2008: Trade liberalization and environmental degradation in China, *Applied Economics*, 40 (7-9): 997–1004.

Sintef, 2009: *CO₂ footprint Norwegian salmon to China*.

Statistics Norway 2010: Foreign trade in goods. Imports and exports to China. Statistikkbanken, ssb.no.

Støre, Jonas Gahr 2011: Shipping in the High North – interests, responsibilities and opportunities, in Grue, J. and R.H. Gabrielsen (eds) *Marine transport in the High North*, Oslo: Novus forlag.

Sugathan, M. 2009: Trade and climate change: WTO negotiations on environmental goods and the IPR dimension. EU–Civil Society Dialogue on Trade and Climate Change, Brussels, 13 May 2009. Available at <http://trade.ec.europa.eu/doclib/html/143168.htm>

Tildelingsbrev 2011. Available at http://www.regjeringen.no/upload/NHD/Vedlegg/Tildelingsbrev/Tildelingsbrev_NGU_2011.pdf

UNCTAD 2003. UNCTAD Secretariat. Environmental goods and services in trade and sustainable development, UNCTAD doc. TD/B/COM.1/EM.21/.

UNCTAD 2004, UNCTAD's Work on environmental goods and services: Briefing Note, WTO doc. TN/TE/INF/7.

UNCTAD 2005, Investor–state disputes arising from investment treaties: a review.

UNEP, EPO and ICTSD 2010, Patents and clean energy: bridging the gap between evidence and policy. Final report. Available at [http://documents.epo.org/projects/babylon/eponet.nsf/0/cc5da4b168363477c12577ad00547289/\\$FILE/patents_clean_energy_study_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/cc5da4b168363477c12577ad00547289/$FILE/patents_clean_energy_study_en.pdf)

UNEP: Technology transfer and cooperation under the Convention on Biological Diversity. Towards more effective implementation (2010). Available at <http://www.unep.org/dec/PDF/TechnicalTransferCBD.pdf>

Vennemo, Haakon; Kristin Aunan, Jianwu He, Tao Hu, Shantong Li and Kristin Rypdal 2008. Environmental impacts of China's WTO accession, *Ecological Economics*, 64: 893–911.

WEF 2010: *The global enabling trade report 2010*. World Economic Forum, Davos, Switzerland. Available at <http://gcr.weforum.org/getr2010/>

- World Trade Report 2010, Available at
http://www.wto.org/english/res_e/publications_e/wtr10_e.htm.
- WTO 2010: Tariff profiles China and Norway. Available at
<http://stat.wto.org/tariffprofile/wsdbtariffpfview.aspx?language=e&country=cn>
and
<http://stat.wto.org/tariffprofile/wsdbtariffpfview.aspx?language=e&country=no>
- WTO Secretariat 2010: Background note on environmental services, 20 August 2010, WTO doc. S/C/W/320.
- Wu Xiaofu; Jens Claussen and Stein Hansen 2007: Review of the Sino-Norwegian environmental cooperation 1996–2005, Norad collected reviews 14/2007.
- Yeung, Yue-man; Joanna Lee and Gordon Kee 2009: China's Special Economic Zones at 30, in *50 Eurasian Geography and Economics*, 2/2009: 222–240
- Zhong Fa Ma 2010: The effectiveness of Kyoto Protocol and the legal institution for international technology transfer, *Journal of Technology Transfer*, Electronic publication. Available at
<http://www.springerlink.com/content/g224366301q61573/>

The Fridtjof Nansen Institute is a non-profit, independent research institute focusing on international environmental, energy, and resource management. The institute has a multi-disciplinary approach, with main emphasis on political science, economics, and international law. It collaborates extensively with other research institutions in Norway and abroad.



**FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE**

**Fridtjof Nansens vei 17, P.O. Box 326, NO-1326 Lysaker, Norway
Phone: (47) 67 11 19 00 – Fax: (47) 67 11 19 10 – E-mail: post@fni.no
Website: www.fni.no**