

UNECE Air pollution questionnaire:

Synthesis of responses to questions related to
Annex IX of the Gothenburg Protocol prepared
by TFRN.

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Introduction

The UNECE Air Pollution Questionnaire

Every two years, UNECE CLRTAP develops and circulates an Air Pollution Questionnaire to the Parties to its Protocols, which contains questions on nitrogen pollution and policy implementation. Every four years (i.e. every other questionnaire sent) a further set of more strategic questions are included, this was the case with the 2006 survey. The 2010 questionnaire is currently underway; therefore the responses are not yet available.

The present document contains a synthesis of the responses received for the following questions:

- 2008 Questionnaire
 - Questions 59-66 (which relate specifically to Annex IX of the Gothenburg Protocol)
- 2006 Questionnaire
 - Question 61 (strategies relating to the agricultural sector)

In addition to this document, the following documents relating to the questionnaire can be downloaded from the TFRN website, <http://www.clrtap-tfrn.org/tfrn-4/docs> :

- Synthesis of responses to questions related to Annex IX of the Gothenburg Protocol: Appendix A [Full responses to Q39 & Q59-66 from 2008 and Q61 from 2006]
- Selected responses to NO_x questions from 2008 questionnaire [Responses from 5 countries to Q2-6 from 2008 questionnaire]
- Full responses to NO_x questions from 2008 questionnaire [All responses to Q2-6 from 2008]

Please note that the information represented here is taken ONLY from the responses provided by the Parties.

Article 3, paragraph 8 (a) of the Gothenburg Protocol and annex IX, paragraph 3 are frequently referred to in the questionnaire, therefore the actual text of these can be found at ‘Official UNECE reference texts referred to in the questionnaire’, page 19.

Responders to the questionnaires

The countries which responded to the Gothenburg Protocol section of the 2008 questionnaire (Q39-66) can be seen in Table 1 (as reported by the convention in ‘COMPLIANCE WITH PROTOCOL OBLIGATIONS: ELEVENTH REPORT OF THE IMPLEMENTATION COMMITTEE’ [ece.eb.air.2009.11.e.pdf](http://www.ece.eb.air.2009.11.e.pdf)). However it appears that within this set of questions, not every country responded to every question. If a more detailed list is required, please refer to Appendix A (available separately on the TFRN website <http://www.clrtap-tfrn.org/tfrn-4/docs>).

The responders to the questions Q50-73 of the 2006 Questionnaire (extra questions relating to strategy, added every fourth year) were not tabulated by the Implementation Committee (only the

protocol specific questions). Therefore we report that Q61 of the 2006 questionnaire was completed by the following countries:

Canada
 Cyprus
 Czech Republic
 Estonia
 Germany
 Lithuania
 Netherlands
 Norway
 Slovakia
 Slovenia
 Switzerland
 United Kingdom

Table 1: List of countries which responded to questions on the Gothenburg Protocol in the Air Pollution Questionnaire in 2008.

A: Response to all questions related to the Protocol received by 1/4/08

B: Response to all questions related to the Protocol received, but not by 1/4/08

C (no...): Response to all questions related to the Protocol received, except those specified

None: No response to any question regarding the Protocol

■ Not applicable (not Party to the Protocol)

R: Reply by a non-Party to the Protocol

Party	Response	Party	Response
Austria	■	Liechtenstein	■
Belarus	■	Lithuania	A
Belgium	A	Luxembourg	None
Bulgaria	B	Monaco	■
Canada	R	Netherlands	A
Croatia	R	Norway	A
Cyprus	A	Portugal	B
Czech Republic	B	Republic of Moldova	■
Denmark	B	Romania	A
Estonia	■	Russian Federation	■
Finland	A	Slovakia	A
France	C(q..60-66)	Slovenia	A
Germany	B	Spain	B
Greece	■	Sweden	A
Hungary	A	Switzerland	A
Iceland	R	Ukraine	R
Ireland	■	United Kingdom	A
Italy	■	United States	A
Latvia	None	European Community	None

Responses to questions

2008 Questionnaire

Question 59 *With reference to article 3, paragraph 8 (a) and annex IX, paragraph 3, have you established, published and disseminated an advisory code on good agricultural practice to control ammonia emissions? If so, please provide details of its provisions, relevant to: (a) Nitrogen management, taking account of the whole nitrogen cycle; (b) Livestock feeding strategies; (c) Low-emission manure spreading techniques; (d) Low-emission manure storage systems; (e) Low-emission animal housing systems; (f) Possibilities for limiting ammonia emissions from the use of mineral fertilizers.*

A total of 17 countries (excluding Canada and Monaco) provided responses to the above question. In all countries, some type of information on best agricultural practice is available; in all but one case this information was established, organised and disseminated through ministerial channels. In the case of Norway they appear to depend on the output of research institutions (it did not state if these were Norwegian only and/or institutions of other nations), which is then brought to farmers through the ‘Norwegian Agricultural Extension Service’ and local and regional administration offices. However in the case of most countries the ‘Code of Best Practice’ (in whatever form) was developed to address more than just ammonia (i.e. nitrates) and many documents were developed for the requirements of the Nitrates Directive or out of BREF Documents relating to pig and poultry systems to implement the IPPC Directive. However, Germany, the Czech Republic, Sweden and Switzerland did specify that they were either developing codes which specifically address ammonia emissions or were disseminating and/or adapting UNECE CLRTAP documents (such as the framework code for good agricultural practice [EB.AIR/WG.5/2001/7] or guidance document [ECE/EB.AIR/WG.5/2007/13]) within their countries.

The number of areas of best agricultural practice for ammonia mitigation (a-f as defined in Annex IX of the Gothenburg protocol), which were mentioned by each country, as being addressed in their national (or regional) guidance documentation, varied from not listing any areas specifically, to listing all six areas (with or without then providing further information on the provisions for each of these areas). Table 2 provides a summary of the areas mentioned, by country, several countries mentioned that they provided information on 5-6 of the areas. At least five countries (Bulgaria, Denmark, Hungary, Spain and the UK) mentioned a spatial aspect to their guidance information – either that autonomous regions within the country had developed more specific guidelines (which better suited the agriculture or climate in that area), or had defined geographical areas which were more vulnerable to nitrogen pollution, where more stringent or specific guidance or rules applied.

In terms of dissemination, several countries, including Bulgaria, Denmark, Slovenia, and Sweden, listed that their guidance was available on the web. Some countries made specific reference to bodies that were responsible for dissemination of information (e.g. in Norway, the ‘Norwegian Agricultural Extension Service’) and in some cases the private advisory sector was responsible for updating and providing information for farmers (again Norway, in relation to feed type and usage).

The guidance documentation provided by countries in many cases referred to pig and/or poultry systems (often due to the links with BREF documents for the IPPC Directive), in some cases cattle was also mentioned (Denmark, the Netherlands, the UK). There were further variations in guidance by country which included information specifically for laying hens, laying aviculture, horses and fur animals.

A range of detail (i.e. from none, to comprehensive) was provided on the provisions made in each of these areas (a-f), in guidance documents developed by the countries. However, provisions relating to timing of application, weather conditions, storage covering and methods of spreading and incorporation of manures, were mentioned by several countries. The guidance provided by these countries on this matter, also varied, see the individual responses by country (accompanying document 'Questionnaire Data'), for more detail.

Table 2: Areas of agricultural best practice addressed in best practice documents/information, by country.

Notes:

Areas are as defined in Annex IX: (a) Nitrogen management, taking account of the whole nitrogen cycle; (b) Livestock feeding strategies; (c) Low-emission manure spreading techniques; (d) Low-emission manure storage systems; (e) Low-emission animal housing systems; (f) Possibilities for limiting ammonia emissions from the use of mineral fertilizers) [(yes) – the area was mentioned, (~)- the area was not specifically mentioned in their response*].

Please note that this information is taken only from responses from the parties – i.e. if an area of practice is listed in the table as ‘not mentioned’ it does not imply that this area is not covered in guidance – only that the party did not list it as being mentioned. If you require further confirmation or details of what parties have included in their documentation, please refer to their guidelines directly.

Country	(a)	(b)	(c)	(d)	(e)	(f)
Bulgaria	yes	yes	yes	yes	yes	yes
Cyprus	yes	yes	yes	yes	yes	~
Czech Republic	yes	yes	yes	yes	yes	yes
Denmark	yes	~	yes	yes	yes	~
Finland	~	~	yes	yes	~	~
Germany	yes	yes	yes	yes	yes	yes
Hungary	~	~	Mentions ‘rules of fertilizing’.	~	~	~
Lithuania	yes	yes	yes	yes	yes	yes
Netherlands	yes	yes	yes	yes	yes	yes ^{#1}
Norway	yes	Consider this issue already implemented ^{#2}	yes	yes	yes	yes
Romania	~	~	Mentions ‘correct use of manure’.	~	~	~
Slovakia ^{#3}	~	~	~	~	~	~
Slovenia	yes	yes	yes	yes	yes	yes
Spain	yes	yes	yes	yes	yes	yes ^{#4}
Sweden	~	~	~	~	~	~
Switzerland ^{#5}	~	~	~	~	~	~
UK	yes	yes	yes	yes	^{#6} Not specifically	yes

#1: The Netherlands state that area (f) is covered in a separate decree – also fertilizers based on urea are hardly used.

#2: Updates regarding feed types and usage are provided through the private advisory sector.

#3: Slovakia states that paragraph 10 does not apply to them – however they do have an agricultural code, based on water protection measures.

#4: This area is covered by separate legislation - it was not clear whether this meant that the guidance existed as separate from that available for a-e (i.e. whether it was integrated into one document or not).

#5: Although Switzerland does not mention specifically which areas are to be included in their code of good agricultural practice, they do state that their code is being prepared according to the specifications of the international framework code – this might suggest that areas a-f will be included in the Swiss guidance document.

#6: Although this issue is not addressed specifically in UK guidance, the UK state that general advice is given in this area.

Question 60 *With reference to article 3, paragraph 8 (a), and annex IX, paragraph 4, please provide details of the steps taken in your country to limit ammonia emissions from the use of solid fertilizers based on urea.*

Information was provided by 17 countries (Canada, the US and Monaco supplied entries in the questionnaire but not a response to the question), Slovakia (although not bound by the protocol) provided a response, but its nature was unclear so it is not included hereafter.

Countries had a varied response in their approach to the tackling of use of solid fertilisers based on urea. Three main approaches were taken:

- a) No steps taken to limit ammonia emissions from solid fertilisers based on urea (including Finland, Norway and Slovenia).
- b) Fertilisers based on urea were not specifically addressed, but were handled under other general guidelines on the use of fertilisers, including the use of fertiliser budgets or maximum applications etc.
- c) Specific guidance on the use of such fertilisers was provided (Cyprus, Czech Republic, Germany, Romania, UK).

In the cases where no steps were taken, the reasons given for this were either that the total amount of such fertilisers used was small, they were required/useful for specific types of agriculture (e.g. forestry) and/or that restricting their use would therefore not be economically feasible.

In some cases it was not entirely clear whether the guidance provided by countries singled out solid urea based fertilisers as opposed to the use of other fertilisers, so the list of countries in approach c) should not be seen as exhaustive. Switzerland suggested that 'urea is used in restricted amount' (except in certain types of agriculture).

The types of measure which were suggested to specifically limit ammonia emissions from solid fertilisers based on urea include:

- Avoiding application at temperature above 8°C (Bulgaria)
- Avoiding application on carbonate soils (Bulgaria)
- Irrigation (Cyprus)
- Incorporating fertiliser within 24 hours, on arable land (Czech Republic)
- Direct incorporation (Germany)
- Using in only cold and wet conditions on grassland (Germany)
- The use of urease inhibitors (Germany, Spain)
- Application shortly before predicted rainfall (UK)

Approaches which addressed solid fertilisers based on urea as part of the range of fertilisers that were in use included:

- A maximum nitrogen application rate to crops (Denmark)
- Fertilisation budgets (Denmark)
- Minimum demands for utilization of nitrogen in manure (Denmark)
- Maximum application standards (by fertiliser type), which includes a standard for 'Total nitrogen application' (Netherlands)

In the case of Denmark, they state that although they have no specific controls on the use of solid fertilisers based on urea, they have made significant reductions (decrease in yearly application, of 6 M

kg N, obtained in the past 11 years). These were achieved using the first three methods in the bulleted list above.

As well as the above measures, at least one other country employs other strategies which although not specifically aimed at minimising emissions from solid fertilisers based on urea, are likely to support such activities. These were reported by the UK, where they provide support for farmers to manage nutrient inputs and minimise losses on their farms, they also support research, including its publication and dissemination, which highlights the most appropriate fertiliser for use under national conditions.

Question 61 *With reference to article 3, paragraph 8 (a), and annex IX, paragraph 5, please indicate whether the use of ammonium carbonate fertilizers is prohibited in your country and specify the relevant legislation.*

The use of ammonium carbonate fertilisers is prohibited in most countries that responded to the questionnaire, either through direct legislation, or indirectly by its exclusion from approved lists of fertilisers. Table 3 lists responses by country and relevant decrees and regulatory bodies [‘Yes (In Practice)’ refers to the exclusion of ammonium carbonate from approved lists’].

Table 3: Responses by country regarding the prohibition of carbonate fertilisers and relevant legislation or regulatory body involved.

Country	Is use of ammonium carbonate fertilisers prohibited?	Legislation or Regulatory Body	Detail
Bulgaria	Yes	Decree of CM No. 5/2003, SG 10/2003	The decree lists fertiliser content, ammonium carbonate is not listed, therefore not available.
Cyprus	Yes	EU Directive 2003/2003/EC	
Czech Republic	Yes (In practice)	Central Institute for Supervising and Testing in Agriculture (ÚKZÚZ)	The body approves fertilisers for use – ammonium carbonate is not approved.
Denmark ^{#1}	No		
Finland	Yes (In practice)	Finnish Food Safety Authority	The body approves fertilisers for use – ammonium carbonate is not approved.
Germany	Yes	Düngemittelverordnung – Ordinance on Fertilizers	
Hungary	?Yes ^{#2} (In practice)	Ministerial Decree 36/2006. (V. 18.) FVM	The decree lists which fertilisers are approved for use.
Lithuania	No		
Netherlands	Yes (In practice)	Appendix I from the Fertilisers Decree 1977 (Meststoffen beschikking)	Ammonium carbonate is not listed in the decree and is therefore not approved.
Norway	Yes	Section 10 c of the ‘Regulation on trade of fertilizers	

		and lime products of 2003'	
Romania	Yes (In practice)	Annex I of the Ministerial Order no. 6/22/2004 for the approval of the Regulation of the Interministerial Commission for licensing of fertilizers, with further amendments (Romanian Official Journal no. 662/2007)	Ammonium carbonate is not listed and therefore is not approved.
Slovenia	Yes	Mineral Fertilizers Act (OJ RS, No. 58/2002 29/06) and Article 12 of Rules on quality of mineral fertilizers (OJ RS, No. 105/2006)	
Spain	Yes (In practice)	Royal Decree 824/2005: The only authorised products are listed in either Annex I of the Regulation (EC) No 2003/2003 or in Annex I of the Royal Decree 824/2005	Ammonium carbonate is not listed in either of the annexes and is therefore prohibited.
Sweden ^{#3}	No		
Switzerland	unclear		
UK ^{#4}	No		

#1: Based on sales estimates Denmark states that ammonium carbonate is not used by farmers.

#2: Ammonium carbonate is not prohibited by legislation in Hungary. However all fertilisers are regulated by decree – Hungary does not explicitly state that ammonium carbonate is not on the approved list, but the nature of its response suggests that this is the case.

#3: Sweden is moving towards legislation prohibiting ammonium carbonate. However, ammonium carbonate is not in use in Sweden currently.

#4: No specific legislation banning the use of ammonium carbonate exists in the UK, however its use in UK agriculture is negligible.

Question 62 *With reference to article 3, paragraph 8 (a), and annex IX, paragraph 6, please explain how your country ensures the use of the low-emission slurry application techniques listed in guidance document V (ECE/EB.AIR/WG.5/2007/13), taking into account local soil and geomorphological conditions, slurry type and farm structure.*

With the exclusion of Canada, the US and Slovakia (not parties to Annex IX) and Monaco (where the issue is not relevant), 16 countries responded to the above question. In many cases the countries responded that they had a ‘Code of good agricultural practice’ of some kind which includes low-emission slurry application techniques, what was not so clear was the level of responsibility of the farmer to adhere to this, whether this activity was monitored or recorded and what incentives and/or penalties would be incurred if farmers did not adhere to this code.

Lithuania was however, very clear, stating that they ensured the use of such techniques through a chain of action – ‘permitting’, ‘inspection’ and ‘enforcement’. At the other end of the scale, Slovenia made it clear that their guidance was an ‘Advisory Code’ and farmers were encouraged to take it into account ‘as far as they considered it applicable’, which meant in most cases that Category 1 techniques (as set out by the CLRTAP guidance document [document ECE/EB.AIR/WG.5/2007/13]) were not used, but Category 2 techniques were (however these were traditional practices in any case).

In the middle ground, countries either stated that the rules they had laid out had to be ‘respected’ (e.g. Bulgaria, Romania). Spain mentions a Royal Decree which will ‘promote’ the use of such techniques. Several countries (UK, Czech Republic, Denmark, Finland, Germany, Hungary, the Netherlands and Sweden) stated legislation or regulations which related to the spreading of slurry, but in many cases it was not clear whether items were banned from use.

Germany did specify that some types of technology were banned, Denmark listed several measures which were brought into force over time (each technological measure being more effective at mitigating emissions than the last). Cyprus, Lithuania and the UK all stated that they used permit schemes which relate to the IPPC Directive. Other approaches included financial incentives (in both cases this approach was in the pilot stage), in Norway and Sweden. Spain also stated that reduction of nitrogen in slurry through nitrification-denitrification processes or by ammonia stripping technologies were to be included under further planned legislation.

Question 63 *With reference to article 3, paragraph 8 (a), and annex IX, paragraph 7, please provide details of the measures taken in your country to limit ammonia emissions from solid manure application, and in particular whether there is a requirement that solid manure applied to land to be ploughed is incorporated within at least 24 hours of spreading.*

Responses were provided by 16 countries. In three countries (Bulgaria, Denmark and the Netherlands), it was either recommended or stipulated that solid manure was not spread over the winter months (the start, end and duration of ‘winter’ stipulated, varied by country) and in Finland it was stated that ‘local circumstances and timing should be taken into account’. Several countries (again Bulgaria, Denmark and the Netherlands) either banned or recommended the spreading of solid manure when the soil is frozen, or under snow (again the details regarding this varied by country). In the Netherlands they also stipulated that application should not go ahead when the soil is saturated with water. Finland stated that ‘manure application on warm, sunny or windy weather should be avoided’. Table 4 provides information on incorporation times for solid manure and whether these are required, advised etc (where stated).

Table 4: Time to incorporation of solid manure and level of obligation, by country.

Country	Time to incorporate solid manure	Level of obligation
Bulgaria	‘Without further delay’	‘should be’
Cyprus	12 hrs	(related to IPPC Directive)
Czech Republic	48 hrs ^{#1} [24hrs in more vulnerable areas]	‘requests’
Denmark	6 hrs	Required
Finland	Immediately – within 24 hrs (In Autumn)	Obligated
	4 hrs	Voluntary
Germany	24 hrs	Not compulsory but recommended
Hungary	24 hrs	‘is to be’
Lithuania	12 hrs	It is a requirement, punishable by fines.
Netherlands	24 hrs ^{#2}	Requirement which is bound in regulation.
Norway	As soon as possible and within 18 hrs	Requirement which is bound in regulation.
Slovakia ^{#3}	48hrs (24hrs in certain conditions)	Requirement which is bound in regulation.
Slovenia	24hrs	Advisory recommendation
Spain	Benefits of incorporation (in terms of % reduction in ammonia emission) are given for 12hr and 24hr incorporation.	Techniques are suggested in local codes and regulations of agricultural practice – it is unclear(from the answer) what is (or is not) mandatory in each area.
Sweden	24hrs (same day it was spread), 4 hrs in some counties	Regulation
Switzerland	24hrs	Listed in the guidance document.
UK	24hrs ^{#4}	Nitrates Directive Action Programme (proposed requirement) or IPPC Regulations

#1: This relates to the size of farms in the Czech Republic.

#2: The Netherlands also note a development from Jan 2008, of a single working process where manure or slurry is spread over the soil and ploughed under by one machine i.e. instant incorporation – however it does not state whether this is mandatory/advised etc.

#3: Slovakia is not under any obligation to do this.

#4: Incorporation within 24hrs is for the following cases:

- In designated Nitrogen Vulnerable Zones
 - Organic manures with low available N on sloping land within 50m of surface water (bare soils or stubbles).
 - Organic manures with high available N (bare soils or stubbles)
- In IPPC installations (un-cropped land or bare soil)

Question 64 *With reference to article 3, paragraph 8 (a), and annex IX, paragraph 8, please provide details on the use in your country of the low-emission storage systems for new slurry stores (construction commenced after 17 May 2006) on large pig and poultry farms (2,000 fattening pigs, or 750 sows or 40,000 poultry) or techniques that have been shown to reduce emissions by 40 per cent or more compared to the reference listed in guidance document V (ECE/EB.AIR/WG.5/2007/13).*

In response to this question, many countries quoted the regulation or guidance which their country provides on low-emission storage systems, in terms of the name of the legislation and/or what this stipulated. Some countries were implementing measures in all farms (i.e. not only new ones) of the required size and type (including Bulgaria, Hungary, Lithuania, Netherlands, Norway, Slovenia, Switzerland and Sweden). Some countries were implementing measures on smaller systems (including Denmark, Germany and the Netherlands). Several countries were implementing this policy (either all or in part) through the IPPC Permits system which was already in practice in their country (including Bulgaria, Cyprus, Lithuania, Sweden, Slovenia, Spain and the UK).

The storage systems which were quoted by countries as being used included providing solid or floating covers, permanent or enclosed/insulated systems (including Cyprus, Denmark^{#1}, Finland, Germany, Romania, Slovenia, Spain and the UK) or filling from underneath (Finland). Other techniques included the use of additives, drying and ventilation of manure belts, anaerobic digestion (included within the storage area), partially slatted flooring for pig housing and dry systems for poultry dropping storage. A few countries stated that the measure which they used or stipulated should achieve greater than a 40% reduction in emissions (including Denmark and Germany).

#1: Denmark stated that there will be a requirement for permanent covers on tanks established after 2007.

Question 65 With reference to article 3, paragraph 8 (a) and annex IX, paragraph 9, please provide details of whether emission reductions of 40 per cent have been achieved in your country for existing slurry stores (construction commenced on or before 17 May 2006) on large pig and poultry farms (2,000 fattening pigs, or 750 sows or 40,000 poultry).

Responses from the countries varied, however in most cases the responses did not clearly state whether they thought (or knew) that the emissions reductions had been achieved. In several countries (including Denmark, Germany, Hungary, the Netherlands and Slovenia) it may well be the case that they achieved the required reduction in emissions (through the measures which they implemented), however they did not state this explicitly. The details which each country provided has been summarised in Table 5.

Table 5: Information supplied by Parties on whether stipulated emissions reductions for existing slurry stores on large farms have been achieved.

Country	Have reductions been achieved?	Detail
Bulgaria	Some expected reduction due to BAT application.	No reliable information exists to answer this question.
Cyprus	Not answered directly.	All IPPC piggeries and poultry farms have been issued permits – these require the conditions to store slurry in concrete tanks with a suitable cover.
Czech Republic	Not fully.	Authorities strongly demand low-emission storing systems, but mostly only Cat. 2 ^{#1} techniques are used.
Denmark	Not stated, but likely to have been achieved.	All tanks must have solid or floating covers and after 2007 permanent covers are required.
Finland	No	44% of slurry stores in the SW (most intensive pig and poultry area) are uncovered.
Germany	Although not stated, this should have been achieved.	Outside storage requires closed tanks or other measures to decrease emissions to at least 80%.
Hungary	Although not stated, this should have been achieved.	From Nov 1 st 2007 insulated storage systems were compulsory.
Lithuania	Not answered directly.	Existing slurry storage systems are covered by the same legislation as that for new ones.
Netherlands	Although not stated, this should have been achieved.	Compulsory covering of basins required since 1 st January 1992.
Norway	Not relevant to Norwegian farms.	Farms of required size do not have slurry based systems.
Romania	Not answered directly.	Permitting and use of BREF is mentioned for all farms of that size.
Slovakia	State that emission reduction is achieved.	Reduction is achieved through additives and change of technology from stables to containers.
Slovenia	Although not stated, this should have been achieved.	BAT requirements for new farms are the same for existing farms.
Spain	In IPPC permitted farms this is likely to be the case.	Correct systems for the storage of slurry are required for IPPC farms.
Sweden	Not answered directly.	General regulation for slurry covering exists in the South. Also all IPPC farms (North and South Sweden) BAT should be used.
Switzerland	Not answered directly.	Only a few installations come into this category. Existing slurry stores are encouraged to retrofit where possible.
UK	No	Only 0.3% of responders in a UK survey, stated that they have fitted a roof or cover to an existing store.

#1: Category 2 techniques as listed in the guidance document ECE/EB.AIR/WG.5/2007/13.

Question 66 *With reference to article 3, paragraph 8 (a) and annex IX, paragraph 10, please provide details of the use in your country of housing systems for new animal housing on large pig and poultry farms which have been shown to reduce emissions by 20 per cent or more compared to the reference listed in guidance document V.*

The countries which responded (17), answered in a variety of ways, several countries (including Bulgaria, Czech Republic, Finland, Hungary, Lithuania, the Netherlands, Norway, Romania, Sweden, Switzerland and the UK) stated that farms must use BAT techniques, and/or those listed in the guidance documents provided within their country. Denmark, the Netherlands and Norway discussed the maximum emission factor targets which farms either currently or in the future, would have to reach. Germany discussed the impact of many types of housing measure and listed the ones which would be best for attaining a reduction of at least 20%.

Several countries discussed measures which were used in their countries, these included, for piggeries, full or partly slatted floors (Cyprus, Slovenia and Spain), vacuum systems (Cyprus), Slurry cooling systems and climate control/ventilation control (Finland). As a general measure, Lithuania described the separation of urine, e.g. the use of straw or peat and rapid removal techniques. With respect to poultry, Finland notes that they use no measures for ammonia abatement, deep pits and manure belts were discussed by Cyprus, solid littered floors by Slovenia and frequent removal of litter, in Spain. In the case of broilers, techniques mentioned were, fans and ventilation (Slovenia), solid litter floor (Slovenia and Cyprus), a suitable non-dripping drinking system (Cyprus and Slovenia) and insulated housing (Cyprus and Slovenia).

2006 Questionnaire

The question below is from the extra questions included in every other questionnaire (i.e. every fourth year). In the case of the 2006 questionnaire, the specific questions relating to ANNEX IX are Q43-49.

Question 61 F. AGRICULTURAL SECTOR

Provide information on strategies in your country for addressing the control of emissions from the agricultural sector. (If appropriate, you may refer to replies under questions 43-49 related to the 1999 Gothenburg Protocol). Are there any financial assistance programmes in your country that promote organic farming?

12 countries provided a response to this question, however as many of the countries had already provided in depth responses to more specific questions regarding the implementation of Annex IX, they focussed on the question regarding organic farming. In this respect several countries (Cyprus, the Czech Republic, Germany, Lithuania, the Netherlands and Slovenia) all stated that some kind of funds or financial assistance were available for the promotion of organic farming. Norway also stated that they had several schemes to promote organic farming, but did not stipulate financial incentives specifically. A few countries provided more specific information on the schemes that were either in place, or planned. Germany has a three part program which includes information and education as well as investment assistance, The Netherlands seeks to stimulate the demand for organic products, i.e. by financially supporting publicity campaigns and help reduce price differences between organic and non-organic products.

Canada (which is not a Party to the Gothenburg Protocol), provided information on their Agricultural Policy Framework, which includes within it measures to 'reduce agricultural risks and provide benefits to the health of the air and atmosphere'. They have also developed Agri-environmental indicators (AEI's) specific to the agriculture and agri-food sector, which focus on air quality (as well as soil quality, water quality and biodiversity).

Estonia (which is not Party to the Gothenburg Protocol and did not provide any responses to Q39 and 59-66 in the 2008 survey), did respond to this question in the 2006 survey. They stated that IPPC agricultural installations were required to use BAT.

Official UNECE reference texts referred to in the questionnaire

Gothenburg Protocol

Article 3

8. Each Party shall, subject to paragraph 10:

(a) Apply, as a minimum, the ammonia control measures specified in annex IX; and

(b) Apply, where it considers it appropriate, best available techniques for preventing and reducing ammonia emissions, as listed in guidance document V adopted by the Executive Body at its seventeenth session (decision 1999/1) and any amendments thereto.

Annex IX

MEASURES FOR THE CONTROL OF EMISSIONS OF AMMONIA FROM AGRICULTURAL SOURCES

1. The Parties that are subject to obligations in article 3, paragraph 8 (a), shall take the measures set out in this annex.

2. Each Party shall take due account of the need to reduce losses from the whole nitrogen cycle.

A. Advisory code of good agricultural practice

3. Within one year from the date of entry into force of the present Protocol for it, a Party shall establish, publish and disseminate an advisory code of good agricultural practice to control ammonia emissions. The code shall take into account the specific conditions within the territory of the Party and shall include provisions on:

- Nitrogen management, taking account of the whole nitrogen cycle;
- Livestock feeding strategies;
- Low-emission manure spreading techniques;
- Low-emission manure storage systems;
- Low-emission animal housing systems; and
- Possibilities for limiting ammonia emissions from the use of mineral fertilizers.

Parties should give a title to the code with a view to avoiding confusion with other codes of guidance.

B. Urea and ammonium carbonate fertilizers

4. Within one year from the date of entry into force of the present Protocol for it, a Party shall take such steps as are feasible to limit ammonia emissions from the use of solid fertilizers based on urea.

5. Within one year from the date of entry into force of the present Protocol for it, a Party shall prohibit the use of ammonium carbonate fertilizers.

C. Manure application

6. Each Party shall ensure that low-emission slurry application techniques (as listed in guidance document V adopted by the Executive Body at its seventeenth session (decision 1999/1) and any amendments thereto) that have been shown to reduce emissions by at least 30% compared to the reference specified in that guidance document are used as far as the Party in question considers them applicable, taking account of local soil and geomorphological conditions, slurry type and farm

structure. The timescales for the application of these measures shall be: 31 December 2009 for Parties with economies in transition and 31 December 2007 for other Parties. 1/

7. Within one year from the date of entry into force of the present Protocol for it, a Party shall ensure that solid manure applied to land to be ploughed shall be incorporated within at least 24 hours of spreading as far as it considers this measure applicable, taking account of local soil and geomorphological conditions and farm structure.

D. Manure storage

8. Within one year from the date of entry into force of the present Protocol for it, a Party shall use for new slurry stores on large pig and poultry farms of 2,000 fattening pigs or 750 sows or 40,000 poultry, low-emission storage systems or techniques that have been shown to reduce emissions by 40% or more compared to the reference (as listed in the guidance document referred to in paragraph 6), or other systems or techniques with a demonstrably equivalent efficiency. 2/

9. For existing slurry stores on large pig and poultry farms of 2,000 fattening pigs or 750 sows or 40,000 poultry, a Party shall achieve emission reductions of 40% insofar as the Party considers the necessary techniques to be technically and economically feasible. 2/ The timescales for the application of these measures shall be: 31 December 2009 for Parties with economies in transition and 31 December 2007 for all other Parties. 1/

E. Animal housing

10. Within one year from the date of entry into force of the present Protocol for it, a Party shall use, for new animal housing on large pig and poultry farms of 2,000 fattening pigs or 750 sows or 40,000 poultry, housing systems which have been shown to reduce emissions by 20% or more compared to the reference (as listed in the guidance document referred to in paragraph 6), or other systems or techniques with a demonstrably equivalent efficiency. 2/ Applicability may be limited for animal welfare reasons, for instance in straw-based systems for pigs and aviary and free-range systems for poultry.

Notes

1/ For the purpose of the present annex, "a country with an economy in transition" means a Party that has made with its instrument of ratification, acceptance, approval or accession a declaration that it wishes to be treated as a country with an economy in transition for the purposes of paragraphs 6 and/or 9 of this annex.

2/ Where a Party judges that other systems or techniques with a demonstrably equivalent efficiency can be used for manure storage and animal housing in order to comply with paragraphs 8 and 10, or where a Party judges the reduction of emissions from manure storage required under paragraph 9 not to be technically or economically feasible, documentation to this effect shall be reported in accordance with article 7, paragraph 1 (a).