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II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DIRECTIVE 93/23/EEC

of 1 June 1993

on the statistical surveys to be carried out on pig production

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 43 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Whereas Council Directive 76/630/EEC of 20 July 1976 concerning surveys of pig production made by Member States ⁽³⁾ has been amended several times; and whereas, further amendments being necessary, the provisions thereof should, for reasons of clarity, be recast;

Whereas provision should be made for those Member States whose pig population makes up only a small percentage of the overall population of the Community to reduce the number of annual surveys where appropriate;

Whereas, in order to ensure that the common agricultural policy is properly administered, particularly where the pigmeat market is concerned, the Commission requires regular data on trends in livestock and in pigmeat production;

Whereas the collection and processing of the data as well as the organization of the survey at national level should continue to lie within the competence of the statistical services of the Member States, and the Commission should be responsible for the coordination and harmonization of statistical information at European level and arrange for the harmonized methodologies necessary to implement Community policies;

Whereas, in order to facilitate implementation of this Directive, close cooperation is necessary between the Member States and the Commission and this should be effected in particular via the Standing Committee on Agricultural Statistics set up by Decision 72/279/EEC ⁽⁴⁾,

HAS ADOPTED THIS DIRECTIVE:

SECTION I

SURVEYS OF THE POPULATION

A. At national level

Frequency — field of survey

Article 1

1. The Member States shall carry out statistical surveys of the pig population on their territory each year with reference to one of the first days of April, August and December.

⁽¹⁾ OJ No C 18, 23. 1. 1993, p. 12.

⁽²⁾ OJ No C 115, 26. 4. 1993.

⁽³⁾ OJ No L 223, 16. 8. 1976, p. 4. Directive last amended by Regulation (EEC) No 1057/91 (OJ No L 107, 27. 4. 1991, p. 11).

⁽⁴⁾ OJ No L 179, 7. 8. 1972, p. 1.

2. The Member States may, at their request, be authorized to carry out the April and August surveys in selected regions, on the understanding that these surveys cover at least 70 % of the pig population.

Those Member States whose pig population is less than 3 million per head may be authorized to dispense with the April and August surveys altogether.

The Member States may, at their request, be authorized to use administrative sources instead of statistical surveys under paragraph 1.

3. In considering the requests referred to in paragraph 2, the Commission shall decide in accordance with the procedure laid down in Article 17.

Article 2

1. For the purposes of this Directive, the term 'pig' means domestic animals of the species *Sus*.

2. The surveys referred to in Article 1 shall cover all pigs held on agricultural holdings as defined in accordance with the procedure laid down in Article 17. The surveys shall cover sufficient holdings to account for at least 95 % of the pig population as determined by the last survey on the structure of agricultural holdings.

3. As far as possible, Member States shall supplement the results of the surveys provided for in paragraph 2 with an estimate of the pig population not covered by the said surveys.

Breakdown by category

Article 3

1. The surveys provided for in Article 1 shall be conducted in such a way as to provide a breakdown of the pig population into at least the following categories:

- A. piglets with a live weight of less than 20 kg;
- B. pigs with a live weight of 20 kg or more but less than 50 kg;
- C. fattening pigs, including cull boars and cull sows with a live weight:
 - (a) of 50 kg or more but less than 80 kg;
 - (b) of 80 kg or more but less than 110 kg;
 - (c) of 110 kg or more;
- D. breeding pigs with a live weight of 50 kg and higher;
 - (a) boars;

(b) covered sows, of which:

(b1) sows covered for the first time;

(c) other sows, of which:

(c1) gilts not yet covered.

2. The categories referred to in paragraph 1 may be modified in accordance with the procedure laid down in Article 17.

3. The categories shall be defined in accordance with the procedure laid down in Article 17.

Accuracy

Article 4

1. The surveys referred to in Article 1 shall be conducted in the form of exhaustive surveys or by representative sampling.

2. For each of the Member States, sampling errors for the results of the surveys provided for in Article 2 (2) shall not exceed 2 % (confidence interval of 68 %) of the total number of pigs.

3. In addition to the sampling frame and the supplementary estimates referred to in Article 2 (3), Member States shall take whatever measures they deem appropriate to maintain the quality of the survey results.

Transmission deadline

Article 5

1. Member States shall notify the Commission of the provisional results of the surveys and supplementary estimates before:

- 15 June of the same year for the April survey,
- 15 October of the same year for the August survey,
- 15 February of the following year for the December survey.

2. Member States shall notify the Commission of the results of the surveys and the supplementary estimates, as defined in Article 4 (2), before:

- 1 August of the same year for the April survey,
- 1 December of the same year for the August survey,
- 1 April of the following year for the December survey.

B. At regional level**Territorial subdivisions***Article 6*

1. The final results of the December survey shall be compiled for each of the territorial subdivisions as defined in accordance with the procedure laid down in Article 17.

2. In accordance with the procedure laid down in Article 17, the Commission may approve an application from a Member State to use the regional breakdown referred to in paragraph 1 for the final results of the April or August survey.

3. The territorial subdivisions referred to in paragraph 1 may be amended by the Commission in accordance with the procedure laid down in Article 17.

Transmission deadline*Article 7*

The Member States shall notify the Commission of the data referred to in Article 6 before 15 May of the year following the reference month.

C. Breakdown by herd size**Size classes***Article 8*

1. In odd-numbered years, the Member States shall, at national level, break down the final results of the December surveys by size classes as defined in accordance with the procedure laid down in Article 17.

2. In accordance with the procedure laid down in Article 17, the Commission may approve an application from a Member State to use the breakdown by size classes referred to in paragraph 1 for the final results of even-numbered years and/or for those of a given month of the year.

3. The size classes referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 17.

Transmission deadline*Article 9*

The Member States shall forward to the Commission the data referred to in Article 8 before 15 May of the year following the reference month.

SECTION II**SLAUGHTERING STATISTICS***Article 10*

1. The Member States shall draw up monthly statistics relating to the number and carcase weight of pigs slaughtered in the slaughter-houses on their territory, the meat of which is deemed fit for human consumption.

If necessary, they shall also supply estimates of slaughterings not included in the returns, so that the statistics include all the pigs slaughtered on their territory.

2. The statistics referred to in paragraph 1 shall be drawn up for the following category:

A. pigs, total.

3. The carcase weight referred to in paragraph 1 and the category referred to in paragraph 2 shall be defined, in accordance with the procedure laid down in Article 17.

Transmission deadline*Article 11*

Member States shall inform the Commission of the results of the statistics referred to in Article 10 (1) within the two months following the reference month.

SECTION III**PRODUCTION FORECASTS***Article 12*

1. The Member States shall use the survey results and other available information to produce forecasts, for each calendar quarter-year, of their supply of pigs.

This supply shall be expressed as the gross indigenous production which shall include all pigs slaughtered plus the balance of intra-Community and external trade in live pigs.

2. The forecasts referred to in paragraph 1 shall be drawn up for the following category:

A. pigs, total.

3. The definition of 'supply' referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 17.

Transmission deadline*Article 13*

The Member States shall forward the forecasts referred to in Article 12 (1) to the Commission at the following times and for the following three-month periods:

- (a) before 15 February for forecasts up to the third quarter of the current year (inclusive);
- (b) before 15 June for forecasts up to the first quarter of the following year (inclusive);
- (c) before 15 October for forecasts up to the second quarter of the following year (inclusive).

SECTION IV**GENERAL PROVISIONS***Article 14*

The Member States shall forward to the Commission the data referred to in Articles 5, 7, 9, 11 and 13 in compliance with Council Regulation (Euratom, EEC) No 1588/90 of 11 June 1990 on the transmission of data subject to statistical confidentiality of the Statistical Office of the European Communities ⁽¹⁾.

Article 15

The Commission shall examine, in consultation with the Member States:

- (a) the results supplied;
- (b) the technical problems which arise, in particular in preparing and carrying out the surveys and forecasts;
- (c) the reliability of the survey results and estimates.

Article 16

The Member States shall inform the Commission of any methodological or other change which would considerably influence the statistics. This shall be done not later than three months after the change in question enters into force. The Commission shall notify the other Member States of any such communication in the appropriate working parties.

Article 17

1. Where the procedure laid down in this Article is to be followed, the chairman of the Standing Committee on Agricultural Statistics (hereinafter referred to as the 'committee') shall refer the matter of the committee, either

on his own initiative or at the request of a representative of a Member State.

2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by a majority of 54 votes, the votes of the representatives of the Member States being weighted in the manner set out in Article 148 (2) of the Treaty. The chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the Committee.

(b) If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If, on the expiry of three months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

Article 18

1. Directive 76/630/EEC shall be repealed as from 1 January 1994.

2. Any reference made to the repealed Directive shall be construed as referring to this Directive.

Article 19

The Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 1 January 1994.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

Article 20

This Directive is addressed to the Member States.

Done at Luxembourg, 1 June 1993.

For the Council

The President

J. ANDERSEN

⁽¹⁾ OJ No L 151, 15. 6. 1990, p. 1.

COUNCIL DIRECTIVE 93/24/EEC

of 1 June 1993

on the statistical surveys to be carried out on bovine animal production

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 43 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Whereas Council Directive 73/132/EEC of 15 May 1973 on the statistical surveys to be carried out by the Member States on bovine livestock, on forecasts of the availability of bovine animals for slaughter and on statistics on slaughtered bovine animals ⁽³⁾ and Council Directive 78/53/EEC of 19 December 1977 laying down additional provisions relating to the statistical surveys to be carried out by the Member States on bovine livestock ⁽⁴⁾ have been amended several times; whereas, further amendments being necessary, the provisions thereof should, for reasons of clarity, be recast;

Whereas provision should be made for those Member States whose bovine population makes up only a small percentage of the overall population of the Community to reduce the number of annual surveys where appropriate;

Whereas, in order to ensure that the common agricultural policy is properly administered, particularly where the beef and veal market is concerned, the Commission requires regular data on trends in livestock and in beef and veal production;

Whereas the collection and processing of the data as well as the organization of the survey at national level should continue to lie within the competence of the statistical services of the Member States, and the Commission should be responsible for the coordination and harmonization of statistical information at European level and arrange for the harmonized methodologies necessary to implement Community policies;

Whereas, in order to facilitate implementation of this Directive, close cooperation is necessary between the Member States and the Commission and this should be effected via the Standing Committee on Agricultural Statistics set up by Decision 72/279/EEC ⁽⁵⁾,

HAS ADOPTED THIS DIRECTIVE:

SECTION I

SURVEYS OF THE POPULATION

A. At national level

Frequency — Field of survey

Article 1

1. The Member States shall carry out statistical surveys of the bovine population on their territory each year with reference to one day in the month of May or June and with reference to one day in the month of December.

2. The Member States may, at their request, be authorized to carry out the May or June surveys in selected regions, on the understanding that these surveys cover at least 70 % of the bovine population.

Those Member States whose bovine population is less than 1,5 million per head may be authorized to dispense altogether with one of the two surveys laid down in paragraph 1 or to carry it out in selected regions only.

The Member States may, at their request, be authorized to use administrative sources instead of statistical surveys under paragraph 1.

3. In considering the requests referred to in paragraph 2, the Commission shall decide in accordance with the procedure laid down in Article 17, the obligations arising from Article 6 being taken into account.

⁽¹⁾ OJ No C 18, 23. 1. 1993, p. 19.

⁽²⁾ OJ No C 115, 26. 4. 1993.

⁽³⁾ OJ No L 153, 9. 6. 1973, p. 25. Directive last amended by Regulation (EEC) No 1057/91 (OJ No L 107, 27. 4. 1991, p. 11).

⁽⁴⁾ OJ No L 16, 20. 1. 1978, p. 20. Directive last amended by Directive 86/80/EEC (OJ L 77, 22. 3. 1986, p. 27).

⁽⁵⁾ OJ L 179, 7. 8. 1972, p. 1.

Article 2

1. For the purposes of this Directive, the term 'bovine animals' means domestic animals of the species *Bos taurus*, *Bubalus bubalus* and *Beefalo*.

2. The surveys referred to in Article 1 shall cover all bovine animals held on agricultural holdings as defined in accordance with the procedure laid down in Article 17. The surveys shall cover sufficient holdings to account for at least 95 % of the bovine population as determined by the last survey on the structure of agricultural holdings.

3. As far as possible, Member States shall supplement the results of the surveys provided for in paragraph 2 with an estimate of the bovine population not covered by the surveys.

Breakdown by category

Article 3

1. The surveys referred to in Article 1 shall be conducted in such a way as to provide a breakdown of the bovine population into at least the following categories:

A. bovine animals less than 1 year old:

- (a) calves for slaughter;
- (b) other:
 - (ba) male;
 - (bb) female;

B. bovine animals aged between 1 and 2 years:

- (a) male;
- (b) female:
 - (ba) animals for slaughter;
 - (bb) other;

C. bovine animals of 2 years and over:

- (a) male;
- (b) female:
 - (ba) heifers;
 - 1. heifers for slaughter;
 - 2. other;
 - (bb) cows:
 - 1. dairy cows;
 - 2. other;

D. buffaloes:

- (a) female breeding buffaloes;
- (b) other buffaloes.

2. The categories referred to in paragraph 1 may be modified in accordance with the procedure laid down in Article 17.

3. The categories shall be defined in accordance with the procedure laid down in Article 17.

Accuracy

Article 4

1. The surveys referred to in Article 1 shall be conducted in the form of exhaustive surveys or by representative sampling.

2. For each of the Member States, sampling errors for the results of the surveys provided for in Article 2 (2) shall not exceed 1 % of the total number of bovine animals and 1,5 % of the total number of cows, (confidence interval of 68 %).

3. In addition to the sampling frame and the supplementary estimates referred to in Article 2 (3), Member States shall take whatever measures they deem appropriate to maintain the quality of the survey results.

Transmission deadline

Article 5

1. Member States shall notify the Commission of the provisional results of the surveys and supplementary estimates before:

- 30 September of the same year for the May/June survey,
- 15 February of the following year for the December survey.

2. Member States shall notify the Commission of the results of the surveys and the supplementary estimates, as defined in Article 4 (2), before:

- 15 October of the same year for the May/June survey,
- 1 April of the following year for the December survey.

B. At regional level

Territorial subdivisions

Article 6

1. The final results of the December survey shall be compiled for each of the territorial subdivisions as defined in accordance with the procedure laid down in Article 17.

2. In accordance with the procedure laid down in Article 17, the Commission may approve an application from a Member State to use the regional breakdown referred to in paragraph 1 for the final results of the May/June survey.

3. The territorial subdivisions referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 17.

Transmission deadline

Article 7

The Member States shall notify the Commission of the data referred to in Article 6 before 15 May of the year following the reference month.

C. Breakdown by herd size

Size classes

Article 8

1. In odd-numbered years, the Member States shall, at national level, break down the final results of the December surveys by herd size classes as defined in accordance with the procedure laid down in Article 17.

2. In accordance with the procedure laid down in Article 17, the Commission may approve an application from a Member State to use the breakdown by herd size classes referred to in paragraph 1 for the final results of even-numbered years and/or for those of the May/June survey.

3. The herd size classes referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 17.

Transmission deadline

Article 9

The Member States shall forward to the Commission the data referred to in Article 8 before 15 May of the year following the reference month.

SECTION II

SLAUGHTERIN STATISTICS

Article 10

1. The Member States shall draw up monthly statistics relating to the number and carcase weight of bovine animals slaughtered in the slaughter-houses on their territory, the meat of which is deemed fit for human consumption.

If necessary, they shall also supply estimates of slaughterings not included in the returns, so that the statistics include all the bovine animals slaughtered on their territory.

2. The statistics referred to in paragraph 1 shall be drawn up for the following category:

- A. calves;
- B. heifers;
- C. cows;
- C. bulls;
- D. bullocks.

3. The carcase weight referred to in paragraph 1 and the categories referred to in paragraph 2 shall be defined in accordance with the procedure laid down in Article 17.

Transmission deadline

Article 11

Member States shall inform the Commission of the results of the statistics referred to in Article 10 (1) within the two months following the reference month.

SECTION III

PRODUCTION FORECASTS

Article 12

1. The Member States shall use the survey results and other available information to produce forecasts, for each calendar half-year, of their supply of bovine animals.

This supply shall be expressed as the gross indigenous production which shall include all bovine animals slaughtered plus the balances of intra-Community and external trade in live bovine animals.

- A. calves;
- B. heifers;
- C. cows;
- D. bulls;
- E. bullocks;

This breakdown may be amended in accordance with the procedure laid down in Article 17.

3. The definition of 'supply' referred to in paragraph 1 and that of 'categories' referred to in paragraph 2 may be amended in accordance with the procedure laid down in Article 17.

Transmission deadline

Article 13

The Member States shall forward the forecasts referred to in Article 12 (1) to the Commission at the following times and for the following six-month periods:

- (a) before 15 February for forecasts up to the first six months of the following year (inclusive);
- (b) before 1 October for forecasts up to the second six months of the following year (inclusive);

SECTION IV

GENERAL PROVISIONS

Article 14

The Member States shall forward to the Commission the data referred to in Articles 5, 7, 9, 11 and 13 in compliance with Council Regulation (Euratom, EEC) No 1588/90 of 11 June 1990 on the transmission of data subject to statistical confidentiality of the Statistical Office of the European Communities ⁽¹⁾.

Article 15

The Commission shall examine, in consultation with the Member States:

- (a) the results supplied;
- (b) the technical problems which arise, in particular in preparing and carrying out the surveys and estimates;
- (c) the reliability of the survey results and estimates.

Article 16

The Member States shall inform the Commission of any methodological or other change which would considerably influence the statistics. This shall be done not later than three months after the change in question enters into force.

The Commission shall notify the other Member States of any such communication in the appropriate working parties.

Article 17

1. Where the procedure laid down in this Article is to be followed, the chairman of the Standing Committee on Agricultural Statistics (hereinafter referred to as the 'committee') shall refer the matter of the committee, either on his own initiative or at the request of a representative of a Member State.

2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by a majority of 54 votes, the votes of the representatives of the Member States being weighted in the manner set out in Article 148 (2) of the Treaty. The chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the committee.

(b) If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If, on the expiry of three months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

Article 18

1. Directives 73/132/EEC and 78/53/EEC shall be repealed as from 1 January 1994.

2. The references to the repealed Directives shall be construed as referring to this Directive.

Article 19

The Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 1 January 1994.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be

⁽¹⁾ OJ No L 151, 15. 6. 1990, p. 1.

accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

Done at Luxembourg, 1 June 1993.

Article 20

This Directive is addressed to the Member States.

For the Council

The President

J. ANDERSEN

COUNCIL DIRECTIVE 93/25/EEC

of 1 June 1993

on the statistical surveys to be carried out on sheep and goat stocks

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

HAS ADOPTED THIS DIRECTIVE:

Having regard to the Treaty establishing the European Economic Community, and in particular Article 43 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Whereas Council Directive 82/177/EEC of 22 March 1982 on the statistical surveys to be carried out by the Member States on sheep and goat stocks ⁽³⁾ has been amended several times; whereas further amendments being necessary, the provisions thereof should, for reasons of clarity, be recast;

Whereas provision should be made for those Member States whose goat population makes up only a small percentage of the overall population of the Community to reduce the number of surveys where appropriate;

Whereas it is important to follow the trend in the structure of the agricultural holdings in the Member States;

Whereas, in order to ensure that the common agricultural policy is properly administered, particularly where the sheepmeat and goatmeat market is concerned, the Commission requires regular data on trends in livestock and in sheepmeat and goatmeat production;

Whereas the collection and processing of the data as well as the organization of the survey at national level should continue to lie within the competence of the statistical services of the Member States, and the Commission should be responsible for the coordination and harmonization of statistical information at European level and arrange for the harmonized methodologies necessary to implement Community policies;

Whereas, in order to facilitate implementation of this Directive, close cooperation is necessary between the Member States and the Commission and this should in particular be effected via the Standing Committee on Agricultural Statistics set up by Decision 72/279/EEC ⁽⁴⁾,

SECTION I

SURVEYS OF THE POPULATION

A. At national level

Frequency — Field of survey

Article 1

1. The Member States shall carry out statistical survey of the sheep population on their territory each year with referring to one of the first days in December.
2. Member States shall also carry out a statistical survey of the goat population, either as a separate survey or as a single survey of both sheep and goat populations:
 - (a) each year, with reference to one of the first days in December, where the goat population is 500 000 head or more;
 - (b) at least once every five years where the goat population is less than 500 000 head.
3. The Member States may, at their request, be authorized to use administrative sources instead of the statistical surveys under paragraphs 1 and 2.
4. In considering the requests referred to in paragraph 3, the Commission shall decide in accordance with the procedure laid down in Article 20.

Article 2

1. For the purposes of this Directive, 'sheep' means domestic animals of the species *Ovis* and 'goats' means domestic animals of the species *Capra*.
2. The surveys referred to in Article 1 shall cover all sheep and goats on agricultural holdings as defined by the Commission in accordance with the procedure laid down in Article 20. They shall cover sufficient holdings to account for at least 95 % of the entire population as determined by the last survey on the structure of agricultural holdings.
3. As far as possible, Member States shall supplement the results of the surveys referred to in paragraph 2 with an estimate of the goat and sheep population not covered by the surveys.

⁽¹⁾ OJ No C 18, 23. 1. 1993, p. 15.

⁽²⁾ OJ No C 115, 26. 4. 1993.

⁽³⁾ OJ No L 81, 27. 3. 1982, p. 35. Directive last amended by Regulation (EEC) No 1057/91 (OJ No L 107, 27. 4. 1991, p. 11).

⁽⁴⁾ OJ No L 179, 7. 8. 1972, p. 1.

Breakdown by category*Article 3*

1. The surveys referred to in Article 1 shall be conducted in such a way as to provide a breakdown of the sheep and goat populations into at least the following categories:

A. sheep, total:**A.1. ewes and ewe lambs put to the ram:**

A.1.1. milk ewes and milk ewe lambs put to the ram;

A.1.2. other ewes and ewe lambs put to the ram;

A.2. other sheep.**B. goats, total:****B.1. goats which have already kidded and goats mated:**

B.1.1. goats which have already kidded;

B.1.2. goats mated for the first time;

B.2. other goats.

2. The categories referred to in paragraph 1 may be modified in accordance with the procedure laid down in Article 20.

3. The categories shall be defined in accordance with the procedure laid down in Article 20.

Accuracy*Article 4*

1. The surveys referred to in Article 1 shall be conducted in the form of exhaustive surveys or by representative sampling.

2. For each of the Member States, sampling errors for the results of the surveys provided for in Article 2 (2) shall not exceed 2 % (confidence interval of 68 %) of the total number of sheep and of goats, or an absolute number to be set in accordance with the procedure laid down in Article 20.

3. In addition to the sampling frame and the supplementary estimates referred to in Article 2 (3), Member States shall take whatever measures they deem appropriate to maintain the quality of the survey results.

Transmission deadline*Article 5*

1. Member States shall notify the Commission of the provisional results of the surveys and supplementary estimates before 1 March after the reference month for the data referred to in Article 3 (1).

2. Member States shall notify the Commission of the results of the surveys and of the supplementary estimates, in compliance with Article 4 (2), before 1 April following the reference month.

Derogations*Article 6*

1. By way of derogation from Article 3 (1):

(a) the subdivisions of category A.1 shall be optional for those Member States where the sheep population at the time of the survey is less than 2 500 000 head;

(b) the subdivisions of category B.1 shall be optional for those Member States where the goat population at the time of the survey is less than 500 000 head;

(c) the Member States referred to in Article 1 (2) (b) shall make an estimate of the total numbers referred to in category B, without subdivision, for each of the years not covered by the survey;

(d) the Member States for which the population of category A.1.1 represents less than 1 % of category A.1 shall be authorized to estimate the figure or derive it from other sources.

2. By way of derogation from Articles 1 and 5, Denmark and the Netherlands shall be authorized to estimate the sheep and goat populations and the United Kingdom the goat population held in December on the basis of the populations recorded during the annual agricultural census which they carry out in May/June of the same year. They shall forward the provisional results referred to in Article 5 (1) to the Commission before 1 March and the results referred to in Article 5 (2) before 15 September of the year following the reference year.

B. At regional level**Territorial subdivisions***Article 7*

1. The final results of the survey shall be compiled for each of the territorial subdivisions as defined in accordance with the procedure laid down in Article 20.

2. The territorial subdivisions referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 20.

Transmission deadline*Article 8*

Member States shall notify the Commission of the data referred to in Article 7 before 15 May of the year following the reference month.

Derogations*Article 9*

By way of derogation from Article 8:

- (a) the Netherlands shall be authorized to notify sheep numbers by 'provincie' in the case of populations covered by the agricultural census conducted in May of the reference year, before 15 September of that year;
- (b) the Member States referred to in Article 1 (2) (b) shall be exempt from notifying the regional breakdown of their goat numbers.

C. Breakdown by size of flock herd**Size classes***Article 10*

- 1. In odd-numbered years, Member States shall provide a breakdown of the final results of the survey at national level by size classes as defined in accordance with the procedure laid down in Article 20.
- 2. In accordance with the procedure laid down in Article 20, the Commission may approve an application from a Member State to use the breakdown by size classes referred to in paragraph 1 for the final results of even-numbered years.
- 3. The size classes referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 20.

Transmission deadline*Article 11*

Member States shall notify the Commission of the data referred to in Article 10 (1) before 15 May of the year following the reference month.

Derogations*Article 12*

By way of derogation from Article 11, Denmark and the Netherlands shall be authorized to notify the data on the structure of their sheep and goat populations and the United Kingdom those of its goat population covered by the agricultural census conducted in May/June of the reference year before 15 May of the following year

SECTION II**SLAUGHTERING STATISTICS***Article 13*

- 1. Member States shall draw up monthly statistics relating to the number and carcase weight of sheep and goats slaughtered in the slaughterhouses on their territory, the meat of which is deemed fit for human consumption.

If necessary, they shall also supply estimates of slaughterings not included in the returns, so that the statistics include all the sheep and goats slaughtered on their territory.

- 2. The statistics referred to in paragraph 1 shall be drawn up for the following categories:

A. sheep, total:

A.1. of which: lambs;

B. goats, total.

- 3. The carcase weight referred to in paragraph 1 and the categories referred to in paragraph 2 shall be defined in accordance with the procedure laid down in Article 20.

Transmission deadline*Article 14*

Member States shall forward the Commission the results of the statistics referred to in Article 13 (1) within the two months following the reference month.

SECTION III**PRODUCTION FORECASTS***Article 15*

- 1. Member States shall use the survey results and other available information to produce forecasts, for each calendar half-year, of their supply of sheep and goats.

This supply shall be expressed as the gross indigenous production which shall include all sheep and goats slaughtered plus the balance of intra-Community and external trade in live sheep and goats.

- 2. The definition 'supply' referred to in paragraph 1 may be amended in accordance with the procedure laid down in Article 20.

Transmission deadline*Article 16*

Member States shall notify the Commission of the forecasts referred to in Article 15 (1) before 1 March following the survey for the two six-month periods of the current year.

SECTION IV**GENERAL REMARKS***Article 17*

Member States shall forward to the Commission the data referred in Articles 5, 6, 8, 9, 11, 12, 14 and 16 in compliance with Council Regulation (Euratom, EEC) No 1588/90 of 11 June 1990 on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities ⁽¹⁾.

Article 18

The Commission shall examine, in consultation with the Member States:

- (a) the results supplied;
- (b) the technical problems which arise, in particular in preparing and conducting out the surveys and estimates;
- (c) the reliability of the survey results and estimates.

Article 19

Member States shall inform the Commission of any methodological or other change which would considerably influence the statistics. This shall be done within three months after the change in question enters into force. The Commission shall notify the other Member States of any such communication in the appropriate working parties.

Article 20

1. Where the procedure laid down in this Article is to be followed, the chairman of the Standing Committee on Agricultural Statistics hereinafter referred to as 'the committee', shall refer the matter of the committee, either on his own initiative or at the request of the representative of a Member State.

2. The representative of the Commission shall submit to the committee a draft of the measures to be taken. The committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by a majority of 54 votes, the votes of the representatives of the Member States being weighted in the manner set out in Article 148 (2) of the Treaty. The chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the committee.

(b) If the measures envisaged are not in accordance with the opinion of the committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If, on the expiry of three months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

Article 21

1. Directive 82/177/EEC shall be repealed as from 1 January 1994.

2. The references to the repealed Directive shall be construed as referring to this Directive.

Article 22

Member States shall bring into force the legal and administrative measures necessary to comply with this Directive not later than 1 January 1994.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

Article 23

1. This Directive is addressed to the Member States.

Done at Luxembourg, 1 June 1993.

For the Council
The President
J. ANDERSEN

⁽¹⁾ OJ No L 151, 15. 6. 1990, p. 1.

COUNCIL DECISION

of 17 May 1993

on the accession of the Community to the Protocol to the 1979 Geneva Convention on long-range transboundary air pollution concerning the control of emissions of nitrogen oxides or their transboundary fluxes

(93/361/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130s thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

Having regard to the opinion of the European Parliament ⁽²⁾,

Having regard to the opinion of the Economic and Social Committee ⁽³⁾,

Whereas Article 130 (5) of the Treaty provides for active cooperation by the Community and the Member States in international measures to protect the environment; whereas, because of the transboundary nature of air pollution, it is in the interest of the Community to participate in international measures designed to reduce this pollution;

Whereas the Community is a contracting party to the Convention of the Economic Commission for Europe of the United Nations on long-range transboundary air pollution (1979 Geneva Convention) ⁽⁴⁾ and to one of its protocols on the financing of EMEP (Cooperative programme for monitoring and evaluation of the long-range transmission of air pollutants in Europe) ⁽⁵⁾.

Whereas Article 130 r (2) of the Treaty provides that measures by the Community should be based on the principles that preventive action should be taken and that environmental damage should as a priority be rectified at source; whereas these principles have been enshrined, as regards air pollution, by several Community legal acts on

the reduction of emissions of nitrogen oxides from the main sources (motor vehicles and large combustion plants);

Whereas the principle of rectification at source is one of the objectives of the NO_x Protocol to the Convention, which lays down in particular a general objective of stabilizing total emissions of nitrogen oxides and provides for the application of emission standards and adoption of anti-pollution measures, while reserving the right to tighten up, if necessary obligations for subsequent negotiation;

Whereas use of the best available technology not entailing excessive costs as set out in the fundamental obligations of the Protocol, has been enshrined since 1984 in Community law on the combating of air pollution of an industrial origin; whereas this same principle has become, since 1989, the basic philosophy for reducing emissions from motor vehicles;

Whereas, in view of the damage caused to the environment and in the light of the transboundary nature of long-range air pollution due to emissions of nitrogen oxides, there should be joint action at international level; whereas the Community should accede to the Protocol on the reduction of emissions of nitrogen oxides or their transboundary fluxes;

Whereas the stabilization of total emissions of nitrogen oxides is a first important step; whereas there is a need to reduce significantly the level of current emissions of both nitrogen oxides and all nitrogenized pollutants in the Community as a whole,

HAS DECIDED AS FOLLOWS:

Article 1

The European Economic Community hereby accedes to the Protocol to the 1979 Convention on long-range transboundary air pollution concerning the control of

⁽¹⁾ OJ No C 230, 4. 9. 1991, p. 61.

⁽²⁾ OJ No C 150, 15. 6. 1992, p. 226.

⁽³⁾ OJ No C 40, 17. 2. 1992, p. 11.

⁽⁴⁾ OJ No L 171, 27. 6. 1981, p. 11.

⁽⁵⁾ OJ No L 181, 4. 7. 1986, p. 1.

emissions of nitrogen oxides or their transboundary fluxes.

Done at Brussels, 17 May 1993.

The text of the said Protocol is attached to this Decision.

Article 2

The President of the Council shall deposit its instrument of accession in accordance with Article 14 of the Protocol.

For the Council

The President

J. HILDEN

PROTOCOL

to the 1979 Convention on long-range transboundary air pollution concerning the control of emissions of nitrogen oxides or their transboundary fluxes

THE PARTIES,

Determined to implement the Convention on long-range transboundary air pollution,

Concerned that present emissions of air pollutants are causing damage, in exposed parts of Europe and North America, to natural resources of vital environmental and economic importance,

Recalling that the executive body for the Convention recognized at its second session the need to reduce effectively the total annual emissions of nitrogen oxides from stationary and mobile sources or their transboundary fluxes by 1995, and the need on the part of other States that had already made progress in reducing these emissions to maintain and review their emission standards for nitrogen oxides,

Taking into consideration existing scientific and technical data on emissions, atmospheric movements and effects on the environment of nitrogen oxides and their secondary products, as well as on control technologies,

Conscious that the adverse environmental effects of emissions of nitrogen oxides vary among countries,

Determined to take effective action to control and reduce national annual emissions of nitrogen oxides or their transboundary fluxes by, in particular, the application of appropriate national emission standards to new mobile and major new stationary sources and the retrofitting of existing major stationary sources,

Recognizing that scientific and technical knowledge of these matters is developing and that it will be necessary to take such developments into account when reviewing the operation of this Protocol and deciding on further action,

Noting that the elaboration of an approach based on critical loads is aimed at the establishment of an effect-oriented scientific basis to be taken into account when reviewing the operation of this Protocol and at deciding on further internationally agreed measures to limit and reduce emissions of nitrogen oxides or their transboundary fluxes,

Recognizing that the expeditious consideration of procedures to create more favourable conditions for exchange of technology will contribute to the effective reduction of emissions of nitrogen oxides in the region of the Commission,

Noting with appreciation the mutual commitment undertaken by several countries to implement immediate and substantial reductions of national annual emissions of nitrogen oxides,

Acknowledging the measures already taken by some countries which have had the effect of reducing emissions of nitrogen oxides,

HAVE AGREED AS FOLLOWS:

*Article 1***Definitions**

For the purpose of the present Protocol:

1. 'Convention' means the Convention on long-range transboundary air pollution, adopted in Geneva on 13 November 1979;
2. 'EMEP' means the cooperative programme for monitoring and evaluation of the long-range transmission of air pollutants in Europe;
3. 'Executive Body' means the executive body for the Convention constituted pursuant to Article 10 (1) of the Convention;
4. 'geographical scope of EMEP' means the area defined in Article 1 (4) of the Protocol to the 1979 Convention on long-range transboundary air pollution, on long-term financing of the cooperative programme for monitoring and evaluation of the long-range transmission of air pollutants in Europe (EMEP), adopted in Geneva on 28 September 1984;
5. 'Parties' means, unless the context otherwise requires, the parties to the present Protocol;
6. 'Commission' means the United Nations Economic Commission for Europe;
7. 'critical load' means a quantitative estimate of the exposure to one or more pollutants below which significant harmful effects on specified sensitive

elements of the environment do not occur according to present knowledge;

8. 'major existing stationary source' means any existing stationary source the thermal input of which is at least 100 MW;
9. 'major new stationary source' means any new stationary source the thermal input of which is at least 50 MW;
10. 'major source category' means any category of sources which emits or may emit air pollutants in the form of nitrogen oxides, including the categories described in the Technical Annex, and which contribute at least 10 % of the total national emissions of nitrogen oxides on an annual basis as measured or calculated in the first calendar year after the date of entry into force of the present Protocol, and every fourth year thereafter;
11. 'new stationary source' means any stationary source the construction or substantial modification of which is commenced after the expiration of two years from the date of entry into force of this Protocol;
12. 'new mobile source' means a motor vehicle or other mobile source which is manufactured after the expiration of two years from the date of entry into force of the present Protocol.

Article 2

Basic obligations

1. The Parties shall, as soon as possible and as a first step, take effective measures to control and/or reduce their national annual emissions of nitrogen oxides or their transboundary fluxes so that these, at the latest by 31 December 1994, do not exceed their national annual emissions of nitrogen oxides or transboundary fluxes of such emissions for the calendar year 1987 or any previous year to be specified upon signature of, or accession to, the Protocol, provided that in addition, with respect to any party specifying such a previous year, its national average annual transboundary fluxes or national average annual emissions of nitrogen oxides for the period from 1 January 1987 to 1 January 1996 do not exceed its transboundary fluxes or national emissions for the calendar year 1987.
2. Furthermore, the Parties shall in particular, and no later than two years after the date of entry into force of the present Protocol:
 - (a) apply national emissions standards to major new stationary sources and/or source categories, and to substantially modified stationary sources in major source categories, based on the best available technologies which are economically feasible, taking into consideration the Technical Annex;
 - (b) apply national emission standards to new mobile sources in all major source categories based on the best available technologies which are economically feasible,

taking into consideration the Technical Annex and the relevant decisions taken within the framework of the Inland Transport Committee of the Commission; and

- (c) introduce pollution control measures for major existing stationary sources, taking into consideration the Technical Annex and the characteristics of the plant, its age and its rate of utilization and the need to avoid undue operational disruption.
3. (a) The Parties shall, as a second step, commence negotiations, no later than six months after the date of entry into force of the present Protocol, on further steps to reduce national annual emissions of nitrogen oxides or transboundary fluxes of such emissions, taking into account the best available scientific and technological developments, internationally accepted critical loads and other elements resulting from the work programme undertaken pursuant to Article 6;
- (b) To this end, the Parties shall cooperate in order to establish:
 - (i) critical loads;
 - (ii) reductions in national annual emissions of nitrogen oxides or transboundary fluxes of such emissions as required to achieve agreed objectives based on critical loads, and
 - (iii) measures and a timetable commencing no later than 1 January 1996 for achieving such reductions.

4. Parties may take more stringent measures than those required by the present Article.

Article 3

Exchange of technology

1. The Parties shall, consistent with their national laws, regulations and practices, facilitate the exchange of technology to reduce emissions of nitrogen oxides, particularly through the promotion of:
 - (a) commercial exchange of available technology;
 - (b) direct industrial contacts and cooperation, including joint ventures;
 - (c) exchange of information and experience; and
 - (d) provision of technical assistance.
2. In promoting the activities specified in subparagraphs (a) to (d) above, the Parties shall create favourable conditions by facilitating contacts and cooperation among appropriate organizations and individuals in the private and public sectors that are capable of providing technology, design and engineering services, equipment or finance.
3. The Parties shall, no later than six months after the date of entry into force of the present Protocol, commence

consideration of procedures to create more favourable conditions for the exchange of technology to reduce emissions of nitrogen oxides.

Article 4

Unleaded fuel

The Parties shall, as soon as possible and no later than two years after the date of entry into force of the present Protocol, make unleaded fuel sufficiently available, in particular cases as a minimum along main international transit routes, to facilitate the circulation of vehicles equipped with catalytic converters.

Article 5

Review process

1. The Parties shall regularly review the present Protocol, taking into account the best available scientific substantiation and technological development.
2. The first review shall take place no later than one year after the date of entry into force of the present Protocol.

Article 6

Work to be undertaken

The Parties shall give high priority to research and monitoring related to the development and application of an approach based on critical loads to determine, on a scientific basis, necessary reductions in emissions of nitrogen oxides. The Parties shall, in particular, through national research programmes, in the work plan of the executive body and through other cooperative programmes within the framework of the Convention, seek to:

- (a) identify and quantify effects of emissions of nitrogen oxides on humans, plant and animal life, waters, soils and materials, taking into account the impact on these of nitrogen oxides from sources other than atmospheric deposition;
- (b) determine the geographical distribution of sensitive areas;
- (c) develop measurements and model calculations including harmonized methodologies for the calculation of emissions, to quantify the long-range transport of nitrogen oxides and related pollutants;
- (d) improve estimates of the performance and costs of technologies for control of emissions of nitrogen oxides and record the development of improved and new technologies; and
- (e) develop, in the context of an approach based on critical loads, methods to integrate scientific, technical and

economic data in order to determine appropriate control strategies.

Article 7

National programmes, policies and strategies

The Parties shall develop without undue delay national programmes, policies and strategies to implement the obligations under the present Protocol that shall serve as a means of controlling and reducing emissions of nitrogen oxides or their transboundary fluxes.

Article 8

Information exchange and annual reporting

1. The Parties shall exchange information by notifying the executive body of the national programmes, policies and strategies that they develop in accordance with Article 7 and by reporting to it annually on progress achieved under, and any changes to, those programmes, policies and strategies, and in particular on:

- (a) the levels of national annual emissions of nitrogen oxides and the basis upon which they have been calculated;
- (b) progress in applying national emission standards required pursuant to Article 2, subparagraph 2 (a) and (b), the national emission standards applied or to be applied and the sources and/or source categories concerned;
- (c) progress in introducing the pollution control measures required pursuant to Article 2, subparagraph 2 (c), the source concerned and the measures introduced or to be introduced;
- (d) progress in making unleaded fuel available;
- (e) measures taken to facilitate the exchange of technology; and
- (f) progress in establishing critical loads.

2. Such information shall, as far as possible, be submitted in accordance with a uniform reporting framework.

Article 9

Calculations

EMEP shall, utilizing appropriate models and in good time before the annual meetings of the executive body, provide to the executive body calculations of nitrogen budgets and also of transboundary fluxes and deposition of nitrogen oxides within the geographical scope of EMEP. In areas outside the geographical scope of EMEP, models appropriate to the particular circumstances of Parties to the Convention therein shall be used.

*Article 10***Technical Annex**

The Technical Annex to the present Protocol is recommendatory in character. It shall form an integral part of the Protocol.

*Article 11***Amendments to the Protocol**

1. Any Party may propose amendments to the present Protocol.

2. Proposed amendments shall be submitted in writing to the Executive Secretary of the Commission who shall communicate them to all Parties. The executive body shall discuss the proposed amendments at its next annual meeting provided that these proposals have been circulated by the Executive Secretary to the Parties at least 90 days in advance.

3. Amendments to the Protocol, other than amendments to its Technical Annex, shall be adopted by consensus of the Parties present at a meeting of the Executive Body, and shall enter into force for the Parties which have accepted them on the 90th day after the date on which two-thirds of the Parties have deposited their instruments of acceptance thereof. Amendments shall enter into force for any Party which has accepted them after two-thirds of the Parties have deposited their instruments of acceptance of the amendment, on the 90th day after the date on which that Party deposited its instrument of acceptance of the amendments.

4. Amendments to the Technical Annex shall be adopted by consensus of the Parties present at a meeting of the Executive Body and shall become effective 30 days after the date on which they have been communicated in accordance with paragraph 5 below.

5. Amendments under paragraphs 3 and 4 above shall, as soon as possible after their adoption, be communicated by the Executive Secretary to all Parties.

*Article 12***Settlement of disputes**

If a dispute arises between two or more Parties as to the interpretation or application of the present Protocol, they shall seek a solution by negotiation or by any other method of dispute settlement acceptable to the Parties to the dispute.

*Article 13***Signature**

1. The present Protocol shall be open for signature at Sofia from 1 November to 4 November 1988 inclusive,

then at the Headquarters of the United Nations in New York until 5 May 1989, by the Member States of the Commission as well as States having consultative status with the Commission, pursuant to paragraph 8 of Economic and Social Council resolution 36 (IV) of 28 March 1947, and by regional economic integration organizations, constituted by sovereign States, members of the Commission, which have competence in respect of the negotiation, conclusion and application of international agreements in matters covered by the Protocol, provided that the States and organizations concerned are Parties to the Convention.

2. In matters which their competence, such regional economic integration organizations shall, on their own behalf, exercise the rights and fulfil the responsibilities which the present Protocol attributes to their Member States. In such cases, the Member States of these organizations shall not be entitled to exercise such rights individually.

*Article 14***Ratification, acceptance, approval and accession**

1. The present Protocol shall be subject to ratification, acceptance or approval by Signatories.

2. The present Protocol shall be open for accession as from 6 May 1989 by the States and organizations referred to in Article 13 (1).

3. A State or organization which accedes to the present Protocol after 31 December 1993 may implement Articles 2 and 4 no later than 31 December 1995.

4. The instruments of ratification, acceptance, approval or accession shall be deposited with the Secretary-General of the United Nations, who will perform the functions of depositary.

*Article 15***Entry into force**

1. The present Protocol shall enter into force on the 90th day following the date on which the 16th instrument of ratification, acceptance, approval or accession has been deposited.

2. For each State and organization referred to in Article 13 (1) which ratifies, accepts or approves the present Protocol or accedes thereto after the deposit of the 16th instrument of ratification, acceptance, approval, or accession, the Protocol shall enter into force on the 90th day following the date of deposit by such Party of its

instrument of ratification, acceptance, approval, or accession.

take effect on the 90th day following the date of its receipt by the depositary, or on such later date as may be specified in the notification of the withdrawal.

Article 16

Withdrawal

At any time after five years from the date on which the present Protocol has come into force with respect to a Party, that Party may withdraw from it by giving written notification to the depositary. Any such withdrawal shall

Article 17

Authentic texts

The original of the present Protocol, of which the English, French and Russian texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

In witness whereof the undersigned, being duly authorized thereto, have signed the present Protocol.

Done at Sofia this thirty-first day of October one thousand nine hundred and eighty-eight.

TECHNICAL ANNEX

1. Information regarding emission performance and costs is based on official documentation of the executive body and its subsidiary bodies, in particular documents EB.AIR/WG.3/R. 8, R. 9 and R. 16, and ENV/WP.1/R. 86, and Corr. 1, as reproduced in chapter 7 of *Effects and Control of Transboundary Air Pollution* ⁽¹⁾. Unless otherwise indicated, the technologies listed are considered to be well established on the basis of operational experience ⁽²⁾.
2. The information contained in this Annex is incomplete. Because experience with new engines and new plants incorporating low emission technology, as well as with retrofitting existing plants, is continuously expanding, regular elaboration and amendment of the Annex will be necessary. The Annex cannot be an exhaustive statement of technical options; its aim is to provide guidance for the Parties in identifying economically feasible technologies for giving effect to the obligations of the Protocol.

I. CONTROL TECHNOLOGIES FOR NO_x-EMISSIONS FROM STATIONARY SOURCES

3. Fossil fuel combustion is the main stationary source of anthropogenic NO_x emissions. In addition, some non-combustion processes can contribute relevant NO_x emissions.
4. Major stationary source categories of NO_x emissions may include:
 - (a) combustion plants;
 - (b) industrial process furnaces (e.g., cement manufacture);
 - (c) stationary gas turbines and internal combustion engines; and
 - (d) non-combustion processes (e.g. nitric acid production).
5. Technologies for the reduction of NO_x emissions focus on certain combustion/process modifications, and, especially for large power plants, on flue gas treatment.
6. For retrofitting of existing plants, the extent of application of low-NO_x technologies may be limited by negative operational side-effects or by other site-specific constraints. In the case of retrofitting, therefore, only approximate estimates are given for typically achievable NO_x emission values. For new plants, negative side-effects can be minimized or excluded by appropriate design features.
7. According to currently available data, the costs of combustion modifications can be considered as small for new plants. However, in the case of retrofitting for instance at large power plants, they ranged from about 8 to 25 Swiss francs per kW_{el} (in 1985). As a rule, investment costs of flue gas treatment systems are considerably higher.
8. For stationary sources, emission factors are expressed in milligrams of NO₂ per normal (0 °C, 1013 mb) cubic metre (mg/m³), dry basis.

Combustion plants

9. The category of combustion plants comprises fossil fuel combustion in furnaces, boilers, indirect heaters and other combustion facilities with a heat input larger than 10 MW, without mixing the combustion flue gases with other effluents or treated materials. The following combustion technologies, either singly or in combination, are available for new and existing installations:

⁽¹⁾ Air Pollution Studies No 4 (United Nations publication, sales No E.87.II.E.36).

⁽²⁾ It is at present difficult to provide reliable data on the costs of control technologies in absolute terms. For cost data included in the present Annex, emphasis should therefore be placed on the relationship between the costs of different technologies rather than on absolute cost figures.

- (a) low-temperature design of the firebox, including fluidized bed combustion;
- (b) low excess-air operation;
- (c) installation of special low-NO_x burners;
- (d) flue gas recirculation into the combustion air;
- (e) staged combustion/overfire-air operation; and
- (f) reburning (fuel staging) ⁽¹⁾.

Performance standards that can be achieved are summarized in Table 1.

Table 1:

NO_x performance standards (mg/m³) that can be achieved by combustion modifications

		Plant type (a)	Uncontrolled baseline	Existing plant retrofit (b)		New plant	O ₂ (%)
				Range	Tropical value		
Solid Fuels	10 (c) to 300 MW	Grate combustion (coal)					
		Fluidized bed combustion	300-1 000	—	600	400	7
		(i) stationary	300-600	—	—	400	7
		(ii) circulating	150-300	—	—	200	7
		Pulverized coal combustion					
		(i) dry bottom	700-1 700	600-1 100	800	< 600	6
Liquid Fuels	> 300 MW	(ii) wet bottom	1 000-2 300	1 000-1 400	—	< 1 000	6
		Pulverized coal combustion					
		(i) dry bottom	700-1 700	600-1 100	—	< 600	6
		(ii) wet bottom	1 000-2 300	1 000-1 400	—	< 1 000	6
		Distillate oil combustion	—	—	300	—	3
		Residual oil combustion	500-1 400	200-400	400	—	3
Gaseous Fuels	10 (c) to 300 MW	Residual oil combustion	200-1 400	200-400	—	—	3
	> 300 MW						
Gaseous Fuels	10 (c) to 300 MW		150-1 000	100-300	—	< 300	3
	> 300 MW		250-1 400	100-300	—	< 300	3

(a) Capacity numbers refer to MW (thermal) heat input by fuel (lower heating value).

(b) Only approximate values can be given due to site-specific factors and greater uncertainty for retrofitting of existing plant.

(c) For small (10 to 100 MW) plants a greater degree of uncertainty applies to all figures given.

10. Flue gas treatment by selective catalytic reduction (SCR) is an additional NO_x emission reduction measure with efficiencies of up to 80 % and more. Considerable operational experience from new and retrofitted installations is now being obtained within the region of the Commission, in particular for power plants larger than 300 MW (thermal). When combined with combustion modifications, emission values of 200 mg/m³ (solid fuels, 6 % O₂) and 150 mg/m³ (liquid fuels, 3 % O₂) can be easily met.

11. Selective non-catalytic reduction (SNCR), a flue gas treatment for a 20 to 60 % NO_x reduction, is a cheaper technology for special applications (e. g. refinery furnaces and base load gas combustion).

⁽¹⁾ There is limited operational experience of this type of combustion technology.

Stationary gas turbines and internal combustion (IC) engines

12. NO_x emissions from stationary gas turbines can be reduced either by combustion modification (dry control) or by water/steam injection (wet control). Both measures are well established. By these means, emission values of 150 mg/m³ (gas, 15 % O₂) and 300 mg/m³ (oil, 15 % O₂) can be met. Retrofit is possible.
13. NO_x emissions from stationary spark ignition IC engines can be reduced either by combustion modifications (e.g. lean-burn and exhaust gas recirculation concepts) or by flue gas treatment (closed-loop three-way catalytic converter, SCR). The technical and economic feasibility of these various processes depends on engine size, engine type (two-stroke/four-stroke), and engine operation mode (constant/varying load). The lean-burn concept is capable of meeting NO_x emission values of 800 mg/m³ (5 % O₂), the SCR process reduces NO_x emissions well below 400 mg/m³ (5 % O₂), and the three-way catalytic converter reduces such emissions even below 200 mg/m³ (5 % O₂).

Industrial process furnaces — Cement calcination

14. The precalcination process is being evaluated within the region of the Commission as a possible technology with the potential for reducing NO_x concentrations in the flue gas of new and existing cement calcination furnaces to about 300 mg/m³ (10 % O₂).

Non-combustion processes — Nitric acid production

15. Nitric acid production with a high pressure absorption (>8 bar) is capable of keeping NO_x concentrations in undiluted effluents below 400 m³. The same emission performance can be met by medium pressure absorption in combination with a SCR process or any other similar efficient NO_x reduction process. Retrofit is possible.

II. CONTROL TECHNOLOGIES FOR NO_x EMISSIONS FROM MOTOR VEHICLES

16. The motor vehicles considered in this Annex are those used for road transport, namely: petrol-fuelled and diesel-fuelled passenger cars, light-duty vehicles and heavy-duty vehicles. Appropriate reference is made, as necessary, to the specific vehicle categories (M₁, M₂, M₃, N₁, N₂, N₃) defined in EEC Regulation No 13 pursuant to the 1958 Agreement concerning the adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicles equipment and parts.
17. Road transport is a major source of anthropogenic NO_x emission in many Commission countries, contributing between 40 and 80 % of total national emissions. Typically, petrol-fuelled vehicles contribute two-thirds of total road transport NO_x emissions.
18. The technologies available for the control of nitrogen oxides from motor vehicles are summarized in Tables 3 and 6. It is convenient to group the technologies by reference to existing or proposed national and international emission standards differing in stringency of control. Because current regulatory test cycles only reflect urban and metropolitan driving, the estimates of relative NO_x emissions given below take account of higher speed driving where NO_x emissions can be particularly important.
19. The additional production cost figures for the various technologies given in Tables 3 and 6 are manufacturing cost estimates rather than retail prices.
20. Control of production conformity and in-use vehicle performance is important in ensuring that the reduction potential of emission standards is achieved in practice.
21. Technologies that incorporate or are based on the use of catalytic converters require unleaded fuel. Free circulation of vehicles equipped with catalytic converters depends on the general availability of unleaded petrol.

Petrol-fuelled and diesel-fuelled passenger cars (M₁)

22. In Table 2, four emission standards are summarized. These are used in Table 3 to group the various engine technologies for petrol vehicles according to their NO_x emission reduction potential.

Table 2

Definition of emission standards

Standard	Limits	Comments
A. ECE R. 15-04	HC + NO _x : 19-28 g/test	Current ECE standard (Regulation No 15, including the 04 series of amendments, pursuant to the 1953 Agreement referred to in paragraph 16 above), also adopted by the European Economic Community (Directive 83/351/EEC). ECE R. 15 urban test cycle. Emission limit varies with vehicle mass.
B. 'Luxembourg 1985'	HC + NO _x : 1,4-2,0 l: 8,0 g/test This standard only used to group technology (< 1,4 l: 15,0 g/test; > 2,0 l: 6,5 g/test)	Standards to be introduced during 1988 to 1993 in the European Economic Community, as discussed at the 1985 Luxembourg meeting of the EEC Council of Ministers and finally agreed upon in December 1987. ECE R. 15 urban test cycle applies. Standard for engines > 2 l is generally equivalent to US 1983 standard. Standard for engines < 1,4 l is provisional, definite standard to be elaborated. Standard for engines of 1,4-2,0 applies to all diesel cars > 1,4 l.
C. 'Stockholm 1985'	NO _x : 0,62 g/km NO _x : 0,76 g/km	Standards for national legislation based on the 'master document' developed after the 1985 Stockholm meeting of Environment Ministers from eight countries. Matching US 1987 standards, with the following test procedures: US Federal Test Procedure (1975); highway fuel economy test procedure.
D. 'California 1989'	NO _x : 0,25 g/km	Standards to be introduced in the State of California, United States from 1989 models onwards. US Federal Test Procedure.

Table 3

Petrol engine technologies, emission performance, costs and fuel consumption for emission standard levels

Standard	Technology	Composite (a) NO _x reduction (%)	Additional (b) production cost (1986 in Swiss francs)	Fuel consumption index (a)
A.	Baseline (Current conventional spark-ignition engine with carburettor)	(c)	—	100
B.	(a) Fuel injection + secondary air (d)	25	200	105
	(b) Open-loop three-way catalyst (+ EGR)	55	150	103
	(c) Lean-burn engine with oxidation catalyst (+ EGR) (e)	60	200-600	90
C.	Closed-loop three-way catalyst	90	300-600	95
D.	Closed-loop three-way catalyst (+ EGR)	92	350-600	98

(a) Composite NO_x reduction and fuel consumption index estimates are for an average-weight European car operating under average European driving conditions.

(b) Additional production costs could be more realistically expressed as a percentage of the total car cost. However, since cost estimates are primarily for comparison in relative terms only, the formulation of the original documents has been retained.

(c) Composite NO_x emission factor = 2,6 g/km.

(d) 'EGR' means exhaust gas recirculation.

(e) Based entirely on data for experimental engines. Virtually no production of lean-burn engines exists.

23. The emission standards A, B, C and D include limits on hydrocarbon (HC) and carbon monoxide (CO) emissions as well as NO_x . Estimates of emission reductions for these pollutants, relative to the baseline ECE R. 15-04 case, are given in Table 4.

Table 4

Estimated reductions in HC and CO emissions from petrol-fuelled passenger cars for different technologies

Standard	HC-reduction (%)	CO-reduction (%)
B.	(a) 30-40 (b) 50-60 (c) 70-90	50 40-50 70-90
C.	90	90
D.	90	90

24. Current diesel cars can meet the NO_x emission requirements of standards A, B and C. Strict particulate emission requirements, together with the stringent NO_x limits of standard D, imply that diesel passenger cars will require further development, probably including electronic control of the fuel pump, advanced fuel injection systems, exhaust gas recirculation and particulate traps. Only experimental vehicles exist to date. (See also Table 6, footnote (a)).

Other light-duty vehicles (N_1)

25. The control methods for passenger cars are applicable but NO_x reductions, costs and commercial lead time factors may differ.

Heavy-duty petrol-fuelled vehicles (M_2 , M_3 , N_2 , N_3)

26. This class of vehicle is insignificant in western Europe and is decreasing in eastern Europe. US 1990 and US 1991 NO_x emission levels (see Table 5) could be achieved at modest cost without significant technology advancement.

Heavy-duty diesel-fuelled vehicles (M_2 , M_3 , N_2 , N_3)

27. In Table 5, three emission standards are summarized. These are used in Table 6 to group engine technologies for heavy-duty diesel vehicles according to NO_x reduction potential. The baseline engine configuration is changing, with a trend away from naturally aspirated to turbo-charged engines. This trend has implications for improved baseline fuel consumption performance. Comparative estimates of consumption are therefore not included.

Table 5

Definition of emission standards

Standard	NO _x limits (g/kWh)	Comments
I. ECE R. 49	18	13 mode test
II. US-1990	8,0	Transient test
III. US-1991	6,7	Transient test

Table 6

Heavy-duty diesel engine technologies, emission performance (a), and costs for emission standard levels

Standard	Technology	NO _x reduction estimate (%)	Additional production (cost (1984 US\$))
I.	Current conventional direct injection diesel engine	—	—
II. (b)	Turbo-charging + after-cooling + injection timing retard (combustion chamber and port modification) (naturally-aspirated engines are unlikely to meet this standard)	40	\$115 (\$69 attributable to NO _x standard) (c)
III. (b)	Further refinements of technologies listed under II together with variable injection timing and use of electronics	50	\$404 (\$68 attributable to NO _x standard) (c)

(a) Deterioration in diesel fuel quality would adversely affect emission and may affect fuel consumption for both heavy- and light-duty vehicles.

(b) It is still necessary to verify on a large scale the availability of new components.

(c) Particulate control and other considerations account for the balance.