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ECONOMIC COMMISSION FOR EUROPE

COMMITTEE ON ENVIRONMENTAL POLICY

Working Party on Water Problems

REPORT OF THE EIGHTH SESSION

as adopted by the Working Party on 3 March 1995

Introduction

1. The eighth session of the Working Party on Water Problems was held in Geneva from 28 February to 3 March 1995.
2. The session was attended by the delegations from: Albania, Austria; Belgium; Bulgaria; Croatia; Czech Republic; Estonia; Finland; France; Germany; Greece; Hungary; Italy; Latvia; Lithuania; Netherlands; Norway; Poland; Portugal; Republic of Moldova; Romania; Russian Federation; Slovakia; Spain; Switzerland; Turkey; Ukraine; United Kingdom, and the United States of America.
3. The session was attended by a representative of the United Nations Environment Programme (UNEP).
4. A representative of the Food and Agriculture Organization of the United Nations (FAO) also attended.
5. The eighth session of the Working Party was opened by Mr. M. VARELA (Spain), incumbent Chairman of the Working Party.
- I. ADOPTION OF THE AGENDA
6. The Working Party adopted its agenda as contained in document CEP/WP.1/1.

## II. ELECTION OF OFFICERS

7. Mr. M. VARELA (Spain) and Mr. M. MATUSKA (Slovakia) were unanimously elected Chairman and Vice-Chairman, respectively.

## III. MATTERS ARISING FROM THE FIRST SESSION OF THE COMMITTEE ON ENVIRONMENTAL POLICY

8. The Working Party took note of the report of the secretariat on relevant decisions taken at the first and special sessions of the Committee on Environmental Policy (ECE/CEP/1 and ECE/CEP/8) and agreed to bear these decisions in mind when discussing the various agenda items.

## IV. STEPS TAKEN BY THE SIGNATORIES FOR THE IMPLEMENTATION OF PERTINENT PROVISIONS OF THE CONVENTION ON THE PROTECTION AND USE OF TRANSBOUNDARY WATERCOURSES AND INTERNATIONAL LAKES

9. Delegations informed the Working Party of further steps taken to bring the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (hereinafter referred to as "the Convention") into force as soon as possible, including action taken to ratify or accede to it. The steps also included amending national water laws and regulations. Delegations also provided information about the drawing-up or revision of bilateral and multilateral agreements in the context of the Convention.

10. The Working Party was informed that instruments of ratification had been submitted to the Depositary by Albania, Germany, Hungary, Luxembourg, Norway, Portugal, Republic of Moldova, Russian Federation and Sweden. The delegation of the Netherlands informed the Working Party that its instrument of ratification would be submitted soon to the Depositary. The delegations of Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Greece, Latvia, Lithuania, Poland, Romania and Spain stated that their Governments were expected to ratify the Convention in the course of 1995.

11. The Working Party:

(a) Referring to Commission decision F (49), paragraph 11, called upon ECE member States and the European Union to consider, if they had not already done so, ratification of or accession to, as appropriate, the Convention;

(b) Requested delegations to provide, as soon as possible, updated information on their respective national focal points for activities of the Working Party on Water Problems under the Convention.

## V. STRENGTHENING THE CAPABILITY OF ECE COUNTRIES TO COMPLY WITH THE CONVENTION

12. The secretariat informed the Working Party about ECE initiatives to provide assistance to countries in transition. Delegations were particularly informed about a joint project proposal between ECE and the Department for Development Support and Management Services (DDSMS) for capacity building in upgrading the capability to monitor and assess transboundary waters in five Central Asian republics. They were also informed about relevant activities of the Regional Adviser.

13. The Working Party:

(a) Invited the secretariat to continue to arrange for assistance to countries in transition, riparian to the same transboundary waters, to draw up project proposals to strengthen their ability to comply with provisions of the Convention for which financial support would be sought from different sources, such as the Technical Support Service of the United Nations Development Programme (UNDP);

(b) Called upon delegations to provide, upon request by countries in transition through their respective focal points, the assistance required to support human resources development and institutional capacity building, and to inform the Working Party at its ninth session on the assistance provided.

VI. POLICIES AND STRATEGIES FOR THE PROTECTION AND USE OF TRANSBOUNDARY WATERS

14. The secretariat introduced its note on policies and strategies for the protection and use of transboundary waters (CEP/WP.1/R.1). Delegations participating in the discussion commended the quality of the work done. Specific modifications and additions to the note were proposed.

15. In the discussion, delegations also expressed their views on the eventual drawing-up of protocols to the Convention as stipulated in the ECE Action Plan to Implement Agenda 21 (E/ECE/1303), to which the Senior Advisers on Environmental and Water Problems gave their general approval at their special session in January 1994, and contained in paragraphs 43 to 45 to document (CEP/WP.1/R.1). Many delegations stated that the drawing-up of protocols would not be the appropriate means to develop the Convention further. They favoured the drawing-up of soft-law instruments. Some other delegations, however, expressed the view that protocols should not be excluded, since protocols would also be appropriate, depending upon the specifics of issues under consideration.

16. The secretariat also informed the Working Party about preparations for a regional ECE/UNEP workshop on Agenda 21, chapter 18, and the Convention with emphasis on countries in transition, which was tentatively scheduled to be held in Ukraine later this year.

17. The Working Party:

(a) Took note of the document on policies and strategies for the protection and use of transboundary waters (CEP/WP.1/R.1) and requested the secretariat to prepare a revision taking into account:

- (i) Specific modifications and additions proposed during the discussion;

(ii) Information provided by delegations following, as appropriate, the guidelines for the provision of information on the implementation of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes pending its entry into force" (ENVWA/WP.3/21, annex II), to be submitted to the secretariat by 1 July 1995 at the latest;

(iii) Any other relevant information;

(b) Invited delegations to participate actively in the preparation and development of the regional ECE/UNEP workshop on Agenda 21, chapter 18, and the Convention with emphasis on countries in transition.

#### VII. SEMINAR ON THE PREVENTION AND CONTROL OF GROUNDWATER POLLUTION FROM THE STORAGE OF CHEMICALS AND WASTE DISPOSAL

18. The delegation of Spain informed the Working Party about further preparations made for the ECE Seminar on the prevention and control of groundwater pollution from the storage of chemicals and waste disposal (CEP/SEM.1/1) to be held in Madrid (Spain) from 11 to 15 September 1995. Information was also provided on the nomination of rapporteurs as well as on discussion papers submitted by delegations on the four seminar topics.

19. The Working Party:

(a) Took note with appreciation of the nomination of rapporteurs by the Russian Federation, Finland, Germany and Spain on seminar topics I to IV, respectively, and expressed its gratitude to the Government of Spain for the efforts made in the preparation of the Seminar;

(b) Urged delegations which had not yet transmitted discussion papers to do so as soon as possible;

(c) Took note of the tentative dates and venue of the first preparatory meeting of rapporteurs (Geneva, June 1995);

(d) Called on delegations to participate actively in the development of the Seminar.

#### VIII. PROGRESS IN SPECIFIC AREAS OF COOPERATION

##### A. Water pollution from point sources

20. Mr. M. Delavalle (France), Chairman of the task force on the control of water pollution from point sources, introduced the reports on prevention, control and reduction of water pollution: experience and problems in countries in transition (CEP/WP.1/R.2) and in countries with market economies (CEP/WP.1/R.3) and document CEP/WP.1/R.4 with conclusions and recommendations on licensing waste-water discharges.

21. Delegations participating in the discussion commended the quality of the work done by the task force and proposed specific modifications and additions to the draft recommendations.

22. The Working Party:

(a) Invited the task force, with France as lead country, to revise documents CEP/WP.1/R.2 to R.4 at the task force meeting tentatively scheduled to be held in September 1995 in France, taking into account the outcome of the discussions held as well as specific proposals for amendments and additions to these documents to be submitted to the Chairman by 1 June 1995 at the latest;

(b) Invited delegations to designate experts for the task force, if they had not already done so.

B. Water pollution from fertilizers and pesticides

23. Mr. O. Malek (Germany), Chairman of the task force on the control of water pollution from fertilizers and pesticides in agriculture, introduced the report on prevention, control and reduction of water pollution from fertilizers and pesticides (CEP/WP.1/R.5), which contains the revised draft guidelines on the prevention and control of water pollution from fertilizers and pesticides, drawn up by the joint task force of the Committee on Environmental Policy and the Committee on Agriculture.

24. Delegations participating in the discussion highlighted the value and the timeliness of the work undertaken jointly under the auspices of both Committees, which supported the drawing-up or enforcement of new policies at both the national and transboundary levels. Referring to the non-agricultural use of fertilizers and pesticides, one delegation proposed a change in the title of the guidelines. The delegation of the Netherlands reserved its position, as it might propose some possible amendments at the second session of the Committee on Environmental Policy.

25. The delegation of Croatia informed the Working Party about preparations made for a ECE/FAO workshop on water pollution and protection in agricultural practice scheduled to be held in Zagreb (Croatia) from 24 to 27 October 1995.

26. The Working Party:

(a) Recommended to the Committee on Environmental Policy at its second session the adoption of the draft guidelines on the prevention and control of water pollution from fertilizers and pesticides in agriculture, as contained in annex II below, and the publication of these guidelines in the Water Series;

(b) Commended the delegation of Germany and the members of the joint task force of the Committee on Environmental Policy and the Committee on Agriculture for the work accomplished;

(c) Welcomed the proposal of the Government of Croatia to host in Zagreb (Croatia) from 24 to 27 October 1995 the ECE/FAO workshop on water pollution and protection in agricultural practice, and invited delegations to participate actively in the preparation and development of that event.

C. Monitoring and assessment of transboundary waters

27. Mr. A. B. van Luin (Netherlands), Chairman of the task force on monitoring and assessment of transboundary waters, introduced the progress report on the work of the task force (CEP/WP.1/R.6). He also informed the Working Party that a follow-up workshop to the International Workshop on Monitoring and Assessment in Water Management "Monitoring Tailor-made", which took place in Beekbergen (Netherlands) from 20 to 23 September 1994 in conjunction with the first meeting of the task force, could be held in 1996.

28. During the ensuing discussion different issues were raised, inter alia: the need for drawing up guidelines on monitoring transboundary groundwaters, international lakes, and estuaries; the proper consideration of water-quantity related aspects of monitoring; the coordination of activities of the tasks forces, led by France and the Netherlands, related to effluent monitoring; good laboratory practices and the accreditation of laboratories; the drawing-up of an inventory of transboundary waters and related maps; and cooperation with other organizations, including those involved in the Global Environmental Monitoring System (GEMS)/Water. Delegations also expressed their readiness to contribute to various activities of the task force.

29. The Working Party:

(a) Took note of the progress made by the task force and of its intention to give proper consideration to specific proposals raised during the discussion;

(b) Commended the delegation of the Netherlands for the quality of work done.

D. Bilateral and multilateral agreements and other arrangements regarding the protection and use of transboundary waters

30. Referring to the list of Bilateral and multilateral agreements and other arrangements in Europe and North America regarding the protection and use of transboundary waters (ECE/ENVWA/32) and its 1994 update (ECE/ENVWA/32/Add.1), delegations informed the Working Party on the recent conclusions of, or negotiations on, new bilateral and/or multilateral agreements, or the adaptation of existing ones, where necessary to eliminate contradictions with the basic principles of the Convention.

31. The Working Party requested the secretariat to issue in the course of 1995 updates of the list whenever delegations provided new information, as far as possible or appropriate, jointly or in consultation with the other countries concerned.

E. Legal and administrative aspects of the Convention

32. Mrs. P. Daskalopoulou-Livada (Greece), Chairperson of the task force on legal and administrative aspects of the Convention, informed the Working Party on the progress made by the task force.

33. The Working Party requested the task force to finalize the draft report on the subject for consideration at the ninth session of the Working Party taking into account relevant information to be submitted by delegations by 1 May 1995 at the latest.

F. Sustainable water management

34. The delegation of the Netherlands, lead country of the task force on sustainable water management, informed the Working Party of the outcome of the workshop on water-demand management, held from 27 to 28 (a.m.) February 1995 in conjunction with the eighth session of the Working Party. This delegation also informed the Working Party about its readiness to consider future activities on water-demand management problems depending on the outcome of the forthcoming regional ECE/UNEP workshop on Agenda 21, chapter 18, and the Convention with emphasis on countries in transition.

35. Delegations expressed their satisfaction with the procedure of convening a workshop on policy issues of water management prior to the meeting of the Working Party and welcomed similar activities for the future.

36. The Working Party:

(a) Took note of the outcome of the workshop and agreed to play an active role in the process of institutional strengthening, human resources development and institutional capacity building through, inter alia:

- (i) The organization of workshops to exchange experience on technical and operational aspects of water-demand management as well as to exchange information on, and develop understanding of, the use of economic instruments for water management. If appropriate, workshops should also be held in conjunction with sessions of the Working Party on Water Problems;
- (ii) The organization of regional or sub-regional training courses for policy makers, planners and managers in the field of water-demand management and integrated planning, where appropriate, in cooperation with relevant international organizations and institutions;
- (iii) The promotion of twinning arrangements between appropriate water undertakings and/or municipalities;
- (iv) The promotion of the formulation of an efficient water-demand management policy in transboundary areas and the encouragement of joint bodies established by countries riparian to the same transboundary waters to include such activities in their work plans;

(b) Welcomed the offer of the delegation of the Netherlands to print the proceedings of the workshop on water-demand management on the basis of the final versions of the workshop contributions to be submitted by participants to the secretariat by 30 April 1995 at the latest;

(c) Requested the secretariat to circulate these proceedings at the regional ECE/UNEP workshop on Agenda 21, chapter 18, and the Convention with emphasis on countries in transition.

IX. WATER-RELATED ACTIVITIES OF OTHER ECE BODIES AND OTHER INTERNATIONAL ORGANIZATIONS AND INSTITUTIONS

37. The Working Party noted the various water-related activities of other ECE bodies and other international organizations and institutions to which reference was made during the discussion of the other agenda items.

X. WORK PLAN

38. The Chairman introduced his note on preparations for the first meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (CEP/WP.1/R.7).

39. During the discussion, delegations addressed particularly the following topics: frequency of meetings of the Parties, level of representation at these meetings, the establishment of a working group on water management under the auspices of the Meeting of the Parties, rules of procedure, financing mechanisms to implement the Convention and the preliminary draft agenda for the first meeting. Delegations also proposed the drawing-up of a draft ministerial declaration for the first meeting of the Parties.

40. The Working Party:

(a) Agreed that the first meeting of the Parties to the Convention should be convened at ministerial level;

(b) Considered it opportune that, at their first meeting, the Parties should set up a working group on water management as a subsidiary body to ensure continuity of work between the meetings of the Parties;

(c) Requested the bureau of the Working Party, with the assistance of the delegations of France, Germany, Greece, Netherlands and any other interested delegations and the secretariat, to draw up for consideration by the Working Party at its ninth session:

- (i) A draft declaration for the first meeting of the Parties;
- (ii) The draft terms of reference for the proposed working group on water management;
- (iii) A draft proposal on adequate financial mechanisms to implement the Convention;
- (iv) A preliminary draft agenda for the first meeting of the Parties, following the terms of reference laid down in article 17, paragraph 2, of the Convention;
- (v) A draft work plan;
- (vi) Any other documentation that may be deemed important.



(d) Invited delegations to communicate to the secretariat at the latest three months before the ninth session of the Working Party their proposals for new activities under the work plan for consideration by the Working Party at that session;

(e) Expressed its gratitude to those Governments that had provided or pledged financial assistance to enable experts from countries in transition to attend the workshops on monitoring and water-demand management, task force meetings and the forthcoming Seminar; and invited Governments to make further contributions;

(f) Recommended to the Committee on Environmental Policy at its second session the adoption of the work plan as contained in annex I below.

42. The ninth session of the Working Party on Water Problems was tentatively scheduled to take place in early 1996.

#### XI. OTHER BUSINESS

43. The delegation of Belgium informed the Working Party about the preparations made for the International symposium on environmental impact assessment in water management to be held in Bruges (Belgium) from 15 to 17 May 1995. It welcomed the substantive contribution of the ECE secretariat and asked for the active participation of members of the Working Party in this symposium .

#### XII. ADOPTION OF THE REPORT

44. The Working Party on Water Problems adopted the report of its eighth session on 3 March 1995.

Annex I

DRAFT PROGRAMME OF WORK

PROGRAMME ACTIVITY 01.5: CONVENTION ON THE PROTECTION AND USE OF  
TRANSBOUNDARY WATERCOURSES AND INTERNATIONAL  
LAKES

Description: Pursuant to decision B (5) adopted by the Senior Advisers at their resumed fifth session, the Working Party on Water Problems will undertake activities on such questions as may be deemed important, pending the entry into force of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

01.5.1 Policies and strategies

Description: The regular exchange of information on steps taken by the Signatories for the implementation of pertinent provisions of the Convention pending its entry into force, will keep the Working Party abreast of recent developments on the protection and rational use of inland waters, at both the national and international levels in the ECE region, and facilitate the convergence of policies and strategies. It will also be useful in selecting priority issues for policy discussion at annual sessions of the Working Party and form a basis for identification of areas of specific cooperation.

Work to be undertaken: A draft review of recent developments in national policies and strategies on the protection and use of transboundary waters will be prepared by the secretariat on the basis of information provided by delegations following the guidelines adopted at the sixth session of the Working Party (ENVWA/WP.3/21, annex II), as appropriate, for consideration by the Working Party at its ninth session.

Duration: 1995.

01.5.2 Prevention, control and reduction of pollution from point sources

Description: Information will be compiled and policy documents prepared on the major issues of prevention, control and reduction of water pollution from point sources, such as the upgrading of waste-water management systems in accordance with the precautionary principle; the control of pollutants within industrial processes; recycling of water and recovery of valuable substances; the establishment of emission inventories; and the application of appropriate economic incentives and disincentives to encourage the prevention of pollution at source. Cooperation with and the service of relevant water-industry associations will be sought.

Work to be undertaken: The task force with France as lead country will revise the reports on prevention, control and reduction of water pollution from point sources (CEP/WP.1/R.2 and R.3) as well as the conclusions and draft recommendations on licensing waste-water discharges (CEP/WP.1/R.4) for

consideration by the Working Party at its ninth session. Activities related to effluent monitoring strategies and procedures will be jointly undertaken with the task force on monitoring and assessment of transboundary waters (see programme element 01.5.4).

Duration: 1995.

01.5.3        Prevention, control and reduction of pollution from diffuse sources

Description: Best environmental practices will be examined to promote the reduction of inputs of nutrients and hazardous substances from diffuse sources, in particular those from agriculture, the storage of chemicals and waste disposal.

Work to be undertaken: A Seminar on the prevention and control of groundwater pollution from the storage of chemicals and from waste disposal will be held in Madrid (Spain) in September 1995. A ECE/FAO workshop on water pollution and protection in agricultural practice will be held in Zagreb (Croatia) in October 1995.

Duration: 1995.

01.5.4        Monitoring and assessment of conditions of transboundary waters

Description: Approaches to water and water-related monitoring and measurements, data handling and quality assurance, will be examined together with methods for assessing the conditions of waters and aquatic ecosystems with a view to strengthening the capabilities of riparian countries, particularly countries in transition, to set up or optimize coordinated or joint monitoring and assessment in transboundary waters, attaining better comparability of data, validity of data and compatible data systems, and coordinating relevant methodological work.

Work to be undertaken: As a first step, the task force with the Netherlands as lead country will draw up draft guidelines to ECE Governments on: (a) monitoring and assessment of watercourses; (b) early-warning systems; and (c) effluent monitoring, which will also provide advice on methods for the biological assessment of transboundary waters, systems of good laboratory practice and the accreditation of laboratories, for consideration by the Working Party at its ninth session. The task force will also draw up proposals for the implementation of these guidelines, and establish a work plan to draw up guidelines on monitoring and assessment of international lakes, monitoring and assessment of estuaries, and monitoring and assessment of transboundary groundwaters. Activities related to effluent monitoring strategies and procedures will be jointly undertaken with the task force on the control of water pollution from point sources (see programme element 01.5.2).

Duration: 1994-1995.

01.5.5 Bilateral and multilateral agreements and other arrangements regarding the protection and use of transboundary waters

Description: Information on bilateral and multilateral agreements and other arrangements within the ECE region for the protection and use of transboundary waters will be compiled and regularly updated. Experience gained in concluding and implementing such agreements will be exchanged.

Work to be undertaken: The secretariat will update the consolidated list of agreements on the basis of information submitted by delegations. A complete revised version of the updated list of agreements will be prepared for wide dissemination at three-yearly intervals.

Duration: Continuing.

01.5.6 Legal and administrative aspects

Description: The practical application of relevant provisions of the Convention and experience gained in their application will be analysed, with particular attention being paid, *inter alia*, to: the practical aspects of adapting existing agreements to the requirements of the Convention, organizational matters of transboundary cooperation, arrangements for the exchange of information between riparian parties, practical arrangements for making information available to the public of riparian parties, and draft rules of procedure for the meetings of the Parties.

Work to be undertaken: A task force led by Greece will draw up a draft report on the above practical problems for consideration by the Working Party at its ninth session

Duration: 1993-1995.

01.5.7 Sustainable water management

Description: Practical approaches and instruments will be examined to promote sustainable water management in day-to-day practice, including water-management activities in transboundary waters. Particular attention will be given to water-quality and quantity aspects of ecologically sound and rational water management, the conservation of water resources and aquatic ecosystems, the application of environmental impact assessment and other means of assessment, the use of transboundary waters in a reasonable and equitable way, and to the development of environmentally sound water-construction works and water-regulation techniques.

Work to be undertaken: A regional ECE/UNEP workshop on Agenda 21, chapter 18, and the Convention with emphasis on countries in transition will be held in Ukraine in the second half of 1995.

Duration: 1995.

01.5.8        Preparations for the first meeting of the Parties to the Convention

Description: Pursuant to the 1992 decision B (5) of the Senior Advisers and taking into account article 17 of the Convention, the Working Party on Water Problems will prepare the first meeting of the Parties.

Work to be undertaken: The Bureau of the Working Party, with the assistance of delegations from France, Germany, Greece and the Netherlands and any other interested delegations and the secretariat, will draw up a draft declaration for the first meeting of the Parties, the draft terms of reference for the proposed working group on water management, a draft proposal on adequate financing mechanisms to implement the Convention, a preliminary draft agenda for the first meeting of the Parties, a draft work plan and any other documentation that may be deemed important, for consideration by the Working Party at its ninth session.

Duration: 1995-1996.

## Annex II

### DRAFT GUIDELINES ON THE PREVENTION AND CONTROL OF WATER POLLUTION FROM FERTILIZERS AND PESTICIDES IN AGRICULTURE

#### Introduction

1. These guidelines are intended to assist ECE Governments in developing and implementing plans, practices and other measures to prevent, control and reduce water pollution from fertilizers and pesticides. They aim to promote sustainable agriculture based on integrated farming. They are primarily addressed to relevant public authorities in ECE countries responsible for water management and agriculture, rather than to farmers.
  2. The guidelines take up those aspects that have a high priority in the ECE region as a whole, and also offer a choice between different options. The most appropriate option may depend on the given socio-economic conditions in a country as well as on the different patterns of agricultural production related, inter alia, to climatic, hydrological, topographic and soil conditions in the country concerned.
  3. These guidelines draw on the experience of environmental and agricultural experts designated by ECE Governments for the joint task force of the Committee on Environmental Policy and the Committee on Agriculture. They also build upon the report on the prevention and control of water pollution from fertilizers and pesticides (ECE/ENVWA/31), adopted in 1993.
- I. POLICY INTEGRATION
4. A new policy in agriculture should be strongly promoted to combine the application of strict legal and regulatory measures and appropriate economic instruments for the protection of water resources against pollution by fertilizers and pesticides with voluntary actions to pursue good agricultural practice. It should encourage farmers to apply less intensive agricultural methods, and cut the use of fertilizers and pesticides. This requires a better coordination and ultimate integration of agricultural policy with environmental policy, land-use planning, and economic policy.
  5. River-basin management, which guides all forms of land use within a catchment area, and environmental impact assessment of agricultural projects, plans and programmes should be promoted to prevent or minimize adverse effects on water resources and the environment in general.
  6. Set-aside and extensification policies should not give rise to the intensification of agricultural production elsewhere. Moreover, all appropriate measures should be taken to ensure that set-aside land and extensification do not lead to adverse impacts on the environment through, for example, nitrogen release from fallow arable lands, soil erosion and the extra use of herbicides.
  7. The polluter-pays principle should be effectively applied in combination with other measures to pollution from point and diffuse sources in agriculture.

## II. ASSESSMENTS AND MONITORING

8. The impact on the environment of proposed agrarian development strategies, policies in plant and livestock production, as well as relevant plans, programmes and regulatory proposals in the agricultural sector should be assessed. The scope and effects of such proposals on water, soil, air and the living environment should be examined in an integrated manner, rather than separately.

9. Up-to-date knowledge on the interaction between the input of nutrients through fertilizers and nutrient removal in crops and the influence of the soil/water characteristics on this process should be used to identify areas vulnerable to high nutrient loss. Topographic and climatic conditions should also be taken into account.

10. Information on the physico-chemical characteristics of a pesticide, together with other relevant information, such as: human health considerations; a pesticide's behaviour in soil and water, and its likely effects on birds, fish, earth worms, etc.; usage data; time of application; soil and climate conditions, should be obtained to evaluate the best way of applying pesticides so as to reduce the risk that they pose to surface waters and groundwaters. This implies, in particular, that there is a need to predict environmental concentration by fate modelling and compare the results with environmental standards and objectives.

11. A set of clearly defined environmentally-based criteria should be established, which pesticides, or their main degradation products, should meet before being authorized for use. These criteria should be established according to the precautionary principle, to account for uncertainties, long-term effects, combined toxicity of a number of pesticides and its ecological effects, rather than exclusively on the basis of the acute toxicity of pesticides. These sets of criteria should be harmonized at the regional level.

12. Risk assessments of pesticides should also be used to target monitoring resources better and to indicate where improvements in both monitoring programmes and analytical methodology are required. Feedback mechanisms are to be created to use such risk assessments in the re-assessment of pesticides.

13. Monitoring programmes in water bodies should take into account the diffuse nature of pollution by nutrients and pesticides. Account should be taken of both the seasonal and local variations in the application of pesticides and of mineral and different organic fertilizers, such as farm manure and other organic waste. This may require, for instance, that the water quality should be monitored not only in major surface waters and groundwaters that might receive inputs of substances from diffuse sources, but also in small creeks and ditches hydrologically connected with those waters. Due to the high costs associated with monitoring, monitoring programmes should be optimized with regard to networks and sampling. Models based on the physico-chemical properties of pesticides should be used and pesticide usage surveys carried out.

### III. CODES OF GOOD AGRICULTURAL PRACTICE

14. Codes of good agricultural practice should be drawn up to provide guidance on how to reduce water pollution by fertilizers and pesticides. These codes should also include advice on methods and practices which considerably lower the need for pesticides and fertilizers, such as: biological methods for pest control; mechanical methods for the control of weeds; the production of disease-resistant cultivars; sound cultivation methods; proper crop rotation; and farming of crops that are adapted to the local conditions and site characteristics, and are of an appropriate quality. These codes should also address livestock farming.

15. Solid and liquid farm manure, such as slurry, and other types of organic wastes from agriculture as well as sewage sludge should be looked on as a resource of nutrients, not as a waste. The use of sewage sludge as fertilizer in agriculture should be the goal for all sewage sludge of the appropriate quality. Efforts should be made to standardize the fertilizer value per unit volume of slurry and per unit weight of solid farm manure. The production and use of solid manure, which is less likely to cause pollution than slurries and liquid manure, can be considered as a better solution to protect the environment in general and water resources in particular.

16. The plant's need for nutrient supply should be assessed in conformity with realistic yield expectations and the local cultivation conditions, such as previous cropping patterns as well as soil and climatic conditions, and with the quality demands of the products. The nutrient content of soils should be regularly monitored and assessed.

17. In order to adjust fertilization to the actual demand at the different growth stages of a crop, application schemes should be drawn up field by field, taking into account the nutrient content of soils and all sources of nutrient input, such as mineral and organic fertilizers, green manure, crop residues and atmospheric deposition. To minimize the potential of leaching, the application of fertilizers should be split depending on the growth stage, the weather conditions, and the climate. An acceptable balance should be struck between the advantage of dividing the application and the higher operational costs involved.

18. By better using the nutrients contained in farm manure, losses to the environment can be limited. Manure should be applied only in appropriate weather conditions, in particular on overcast days, and in quantities which do not exceed the demand of the crop or grassland. In deep snow and on frozen soil, there should be no manure application. If applied on bare soil, manure should immediately be incorporated into the soil to minimize surface run-off and gaseous nitrogen losses.

19. Tilling methods should be modified to avoid the mineralization of nutrients within the subsoil. During the fertilizer application, direct inputs into surface waters including field ditches should be avoided, and care should be taken to minimize surface run-off.



20. Other protective measures include the provision of sufficient, safe and environmentally sound storage facilities for solid mineral fertilizers and solid manure. For liquid mineral fertilizers and slurries, special precautions should be taken in the design, construction and operation of tanks and, in particular, in the proper dimensioning of their storage capacity. For liquid fertilizers, special applicators should be used to avoid the dispersion of wind-blown droplets into surface waters.

21. In greenhouse farming, the general goal should be to achieve a closed cultivation system. The recirculation of drainage and condensation water to avoid discharges of contaminated water, as well as the use of drain water for irrigation, can help to minimize pollution.

22. Safe handling, storage and disposal of pesticides, including the introduction of a disposal system for pesticide residues and washings, and the control of sprayers should be an integral part of any strategy to prevent and reduce the adverse environmental impact of pesticides. Strict precautions should be taken to prevent pesticides from spreading beyond the area treated, in particular, into water bodies.

23. In order to reduce the occurrence of pests or diseases, the use of high-quality, disease-free plant material or seeds should be encouraged; proper measures should be taken to prevent the spread of disease across different fields; the amount of fertilizers should be limited, since increasing quantities of fertilizers could lead to a high susceptibility to diseases; and the extensification of crop-rotation schemes should be promoted.

24. The use of pesticides should be reduced to the absolute minimum necessary for plant protection, as indicated by the damage threshold limit. Cultivation practices, including mechanical and biological methods, should be implemented to prevent or reduce weeds. Preventive pesticide applications should be the exception, rather than the rule.

25. Specific precautions should be taken to use the correct pesticide and the correct application rate. The aim should also be to use only pesticides which do not degrade into harmful metabolites and are not persistent.

26. The input of substances, in particular phosphates and heavy metals contained in fertilizers, as well as pesticides, into surface waters through soil erosion and surface run-off should be prevented through a set of measures which cover the improvement of soil characteristics to increase soil resistance against erosion, the prevention of mechanical destruction of the soil structure as a result of soil compaction, and the creation of conditions on agricultural land which minimize as far as possible the potential for the formation of surface run-off from these areas.

27. Measures to reduce soil erosion should cover green fallowing, the cultivation of catch crops and winter crops as well as crops suitable to the site, reduced tillage techniques, suitably designed farm machinery, and, in some cases, the construction of systems of small ditches. Along surface waters, sufficiently broad vegetation zones, which act as filter strips, should also be established. These zones should be kept free from fertilizers and pesticides.

28. For hilly and mountainous areas, specific and appropriate soil management techniques, such as contour tillage, terracing and banking, should be applied in order to prevent soil erosion and, hence, reduce pesticide and fertilizer loss to the environment.

29. Remedial measures should be undertaken to restore the appropriate physical structure of the soils up to the necessary humus supply, determined by site-specific conditions, by increasing the organic complex through, for example, incorporating crop residues or green manure intercropping.

30. A permanent vegetation cover should be kept and the natural soil pattern conserved or improved. Permanent grasslands should not be ploughed in order to prevent the sudden release of nitrates and changes in the nitrogen balance of the soil. On arable land, intercropping should also be used to retain excessive nitrogen amounts.

31. All measures aimed at increasing soil permeability and reducing water-storage capacity, such as the construction of drainage systems, should be checked for their potential to increase leakage-based material inputs into water bodies.

#### IV. REGULATORY AND ECONOMIC MEASURES

32. The regulatory framework should cover in an integrated manner the major aspects of the use of solid and liquid fertilizers, including slurry and solid farm manure, and pesticides in agriculture, horticulture and greenhouse farming. The implementation of these regulations should be adequately monitored. Appropriate legal sanctions should be instituted for non-compliance.

33. The use of pesticides, all kinds of fertilizers and organic wastes should be restricted in water protection zones and sensitive areas. Stricter requirements, or even a ban, should be imposed if the quality of the receiving water or ecosystem within these areas so requires. These substances should not be used near to surface water bodies; on water-saturated and flooded ground; nor in vegetation strips which are established along surface waters to prevent inputs of substances through surface run-off. Moreover, there should be no application of fertilizers and organic wastes on frozen and snow-covered ground.

34. The threshold values for impurities in pesticides as well as in mineral and organic fertilizers (e.g. cadmium in phosphate-based fertilizers, copper and zinc in pig slurries) should be set very cautiously.

35. Quality standards for sewage sludge should be adopted and monitored.

36. Legislation should provide either for the approval of pesticides for a limited period of time only, or for a regular review of the approval. The authorization of a new pesticide and the renewal or the review of older products should be based, inter alia, on the assessment of the risk that a pesticide poses to groundwater, surface water, biota and related ecosystems as well as to human health and safety. Those pesticides with a proven adverse effect on water should be phased out.

37. The extensification of agrarian production should incorporate both economic and environmental considerations. In regulating market economic conditions, government authorities should ensure that environmental benefits are maximized. Moreover, economic instruments aimed at containing surplus production should be brought in line with measures to protect waters and the environment in general.

38. While the polluter-pays principle should play a central role in environmental and agricultural policies, there are cases in which payments to farmers for environmentally friendly behaviour are justified, or even necessary. This may be the case where environmental regulations affect clearly defined property rights related to land use, and where incentives prove to be more acceptable and thus more effective than measures which shift the cost burden to the farmers. Subsidies for agricultural practices should not give rise to adverse impacts on the aquatic environment.

39. Good agricultural practice should be adhered to by all farmers without any financial compensation. If farmers are required to make more substantial changes in agricultural production, going beyond good agricultural practice, such as restrictions in water protection zones and sensitive areas, extensification, and the restoration of flood plains and former wetlands, in order to meet specific environmental objectives, they may be compensated. Direct payments and other financial incentives should be made to farmers on condition that they comply with these environmental protection requirements.

40. The effectiveness of regulatory and economic measures to protect waters and the environment in general should be regularly assessed.

## V. EXTENSION SERVICES AND RESEARCH

41. Advisory services for fertilizer application, plant protection and sprinkler irrigation established in the past should be revised in order to lay more emphasis on the consideration of water, soil and the overall environmental conditions and consequences when providing advice. Centres of expertise should be designated. As a rule, advice should be provided free of charge.

42. Competent administrative authorities and associations should cooperate closely to promote the development and use of sustainable farming practices and technologies, which do not adversely affect waters and the environment in general, and to further extension services. Such cooperation should also aim for responsibility sharing among policy makers, planners, managers as well as farmers and other users of water.

43. Information on the consequences of the use of pesticides for the environment should be provided to farmers. Training in the correct use of pesticides, including methods for the control of pesticide-resistant species, should also be provided to farmers. Anyone wishing to work with pesticides should provide proof of his relevant skills and knowledge before receiving an authorization.

44. Research into alternative and/or integrated plant protection methods, appropriate fertilization methods, waste management, and efficient farming equipment should be promoted. Priority areas of research should cover, inter alia:

(a) Development of reliable techniques for sampling and analysis (including water, soil, air and plant samples) as well as improvement of methodologies for integrated monitoring;

(b) Further development of appropriate prognostic models on the dynamics of nitrogen compounds in the soil-water-plant system, including simplified models for day-to-day use under field conditions;

(c) Cropping systems allowing a more efficient use of the nutrients contained in fertilizers and particularly in farm manure;

(d) Model development and validation for pesticide transport through ecosystems, as well as the investigation of the fate and risk associated with the metabolites of pesticide degradation;

(e) Field management techniques to determine how various land management practices affect pesticide leaching;

(f) Disposal techniques designed to reduce the environmental impact of pesticide waste caused particularly by filtration and degradation.