

RECOMMENDATIONS TO ECE GOVERNMENTS ON WATER POLLUTION FROM ANIMAL PRODUCTION

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With the rapidly increasing consumption of animal products in the ECE region in the recent past, economic considerations stimulate the development of large-scale stock farming, while in some countries traditional methods of raising animals are losing importance. As a result of keeping and processing large quantities of animals on small sites, a great amount of manure is being concentrated which cannot always be easily reutilized in agriculture. Large-scale and intensive stock farming, therefore, is considered as a possible source of water pollution, growing in significance. Other environmental problems such as odour problems and soil pollution problems associated with advanced animal production are also rapidly becoming acute in many ECE countries. For this reason, considerable efforts will have to be made to minimize water pollution arising from large-scale stock farming.

-- It is therefore recommended that:

1. Steps should be taken, where necessary, to formulate in each country a long-term policy which fosters appropriate and efficient measures to comply with the growing number of large-scale livestock holdings while reducing waste of water in animal breeding processes and abating water pollution at source as well as recycling in crop production the nutrients contained in waste from large-scale livestock farming that would otherwise be lost and cause water pollution.

2. Priority should be accorded to the effective enforcement of legal and administrative provisions which prohibit all direct discharges of any waste - whether treated or not prior to discharge - from animal production into both surface waters and ground-water aquifers.

3. The formulation and promulgation of comprehensive criteria on national and on regional levels for the selection and development of sites of large-scale and intensive livestock production should be promoted. These criteria should, in particular, take into consideration national legislation and existing regulation, land-use planning policies, availability of water supply of sufficient quality, and the potential pollution hazard to surface water and ground water. This should be carefully balanced against the other economic factors of livestock production.

4. Priority should be accorded to the creation and enforcement of regulatory schemes by which licences - including the control over disposal and discharge of solid and liquid wastes - would be issued for the operation of large-scale and intensive livestock units. These regulations should strive to restrict operations of livestock farming to such areas where sufficient land is available for correct application and use of manure and slurry, thus controlling the livestock density, in particular in regions already subject to heavy environmental stress.

5. Priority should be given to the preparation of guidelines for the abatement or considerable reduction of pollution from large-scale livestock units. These guidelines would need to be interpreted in the light of local circumstances, especially where drinking water resources development or residential development is proposed close to large-scale livestock production units.

6. A system of economic instruments should be developed together with a comprehensive regulatory scheme. This system could include grants and subsidies, low-interest loans and tax relief as well as water fees, effluent charges, penalties and fines. Serious consideration should be given to those combinations of economic instruments having a pronounced economic incentive effect for promoting: a better balance between agricultural, environmental and water management interests; prevention of direct discharge of liquid manure to surface waters; a careful and wasteless use of water on farms; and recycling of manure to land.

7. Authorities responsible for water-quality management should take steps for regular quality monitoring of those water bodies and water supplies which may be liable to pollution from large-scale livestock units. Monitoring should be in line with comparable, objective methods which permit exact measuring of the degree of water pollution and its causes.

8. In applying manure to agricultural land, care should be taken so that the amount of manure spread corresponds not only to that which is appropriate for purposes of plant growth - given the geographical position, climate, type of soil, crop rotation - but also to water conservation requirements and other environmental factors. Provision should therefore be made for creating, where necessary, suitable protection zones adjoining lakes, water courses, wells and boreholes to reduce the risk of water pollution.

9. Consideration should be given, if necessary, to applying measures which stimulate the transport of manure over longer distances to croplands, thus promoting the utilization of animal waste on arable land not otherwise available to feedlot operators. Methods and technologies which could reduce the volume of manure and concentrate the nutrients into more economically transportable quantities ought to be developed and their application promoted.

10. Regarding the economics of manure treatment, both the initial investment and the operating costs of the system should be taken into account along with land and labour availability and requirements for energy and chemicals. The flexibility and reliability of the system should be studied with regard to possible environmental implications such as odour, aerosol and noise, the eventual contamination of surface water and ground water and the disposal of sludge resulting from the treatment process.

11. Spreading of manure should as far as possible be undertaken at a time when climatic, soil and plant conditions are such as to minimize the risk of surface run-off or leaching into ground water and to avoid odour. Spreading on snow-covered and frozen ground should be avoided. To this end, every effort should be made to provide adequate storage capacity for wastes from large-scale livestock units. Guidelines should be elaborated regarding the storage and subsequent handling of animal waste, whether solid or liquid.

12. Increased emphasis should be paid to the development and improvement of programmes for training agricultural advisers as well as operators and staff of large-scale animal production units and for the education of farmers who are applying animal wastes to their lands, with a view to focusing greater attention on environmental problems. In this respect, a variety of measures could be employed which would make farmers and operators more

aware of governmental policies and strategies for abating water pollution and optimizing the use of nutrients and water in this sector.

13. Priority should be given to promote research at the national and international level on questions related to the protection of water resources from wastes resulting from large-scale animal production and to the rational utilization of manure as a fertilizer and conditioner of farmland. This reeseach should be multi-disciplinary and should take into account trends in automation and mechanization of agricultural processes. In this respect, the following topics should in particular be studied: (a) appropriate and economic methods for the preparation, transportation and spreading of manure on farmland; (b) factors affecting the efficient use of manure for crop fertilization; (c) research of environmental effects of animal production, especially with regard to water pollution and (d) ways and means for the effective control of water pollution.