

## Editorial

Statistical reporting about the environment is a relatively recent field of work for all statistical offices. Those who have engaged in such reporting were forced to develop the conceptual, taxonomic and methodological foundations of environment statistics. Wherever the process was carried to actual data publication, statistical offices encountered considerable – and growing – public interest.

The Conference of European Statisticians recognized the great potential of environment statistics at a relatively early date. First exploratory meetings were convened by this leading institution of multilateral international statistical co-operation in 1973. The initial period of “tâtonnement” regarding the scope and contents of the Conference’s work in this field was concluded in 1978 with the adoption of a medium-term programme of work. The rationale underlying the programme partly was to develop concepts, their definitions and statistical classifications in individual sub-areas prior to any consideration of whether or not data should be collected and published for ECE membership, i.e. the East and West European countries and North America. In addition, an intensive and regular exchange over methodological statistical questions was organized, and the participating experts, over time, not only advanced the cause of environment statistics, but also developed a number of “models” for their presentation. The evident success of the Conference’s work in this field can in retrospect be attributed to two main reasons. Firstly, the Conference has managed to implement its work programme to schedule, which was only possible through the application of flexible and “business-like” like methods of work. Secondly, environment statistics happened to grow in ECE member countries during a period of general budgetary constraint, and the use of a functioning mechanism of international co-operation – which, on top of it, found active support from the widest possible audience in the region – offered some relief to scarce resources being put to the task in each of the member countries. Among other things, the success of the programme can be demonstrated by the spontaneous approval of the Conference of a timid proposal in 1984 to compile a statistical compendium of environmental information during a period of severe financial constraint on the United Nations. Not only that – the ensuing data collection from ECE member countries met with an unprecedented response rate of one hundred per cent.

The statistical compendium “Environment Statistics in Europe and North America” appeared in August 1987 in the English language, and early in 1988 in French and Russian. As stated earlier, it could only be envisaged after the necessary conceptual and methodological preparation had been sufficiently advanced. In fact, the Conference had developed, between 1979 and 1985, seven

draft statistical standard classifications in individual areas (land use; water use; water quality; ambient air quality; fauna, flora, habitats; solid wastes; and aggregate environmental indicators), which were all used in the preparation of the data compendium. In addition, the compendium also includes a statistical monograph of the Baltic Sea. This monograph illustrates another "model" of the presentation of environment statistics, in that it attempts to look at a comprehensive theme, The Baltic Sea as it were, from all possible points of view. Thus, statistics are assembled and presented in a way which conveys the importance and peculiarities of the Baltic Sea both from the point of view of the ecosystem it is and the resource it constitutes for human activities. The monograph was prepared with the information kept by the Baltic Marine Environment Protection Commission, which the Commission has generously made available. The completion of the data compendium gave rise to the establishment of an International Environmental Data Service at the ECE secretariat, which, if present plans to increase substantially the East–West exchange of environmental data come true, could well become part of the institutional nucleus for such exchange.

The conceptual and methodological work undertaken over the years quite naturally started from approaches that were, and are, under development in the majority of ECE member countries. As far as statistics of environmental pollution are concerned, these approaches regularly make extensive use of physical and chemical sciences and the related measurement concepts and techniques. However, it became apparent in the course of that work that biology – and, in particular, its ecological branch – often offers a different scientific reference framework for the derivation of adequate statistical concepts. As a result, uncertainty grew among experts whether ecology could offer an alternative in the development of environment statistics, which would permit the comparatively easy (i.e. cheap) compilation of generalized information. This growing uncertainty led to the convening by the Conference of a seminar on ecological statistics, which was held in Rome in spring 1988. The fundamental importance of the question also prompted the preparation of this special issue of the *Statistical Journal*. Seven of its nine contributions are based on discussion papers that were submitted to the Rome seminar.

The article by Nedialkov and Altchev deals with general aspects of the introduction of ecological expertise into the emerging Bulgarian system of environment statistics. Koskimies looks at the possibilities of using birds as an object of environmental monitoring. Bråkenhielm considers a number of aspects of vegetation monitoring, which are crucial to the possible production of generalized air quality statistics from it. Descy and Micha report on the use and scope of biotic indices for water quality statistics. Miettinen and Heinonen as well as Recknagel deal with special, well-defined applications of water quality information. The first of these two articles treats the observation of eutrophication indices, benthic fauna and of other aquatic organisms in water quality monitoring. Recknagel uses an ecological lake model for simulation purposes as part of water quality control. The incorporation of ecological potential into land evaluation, including the fixing of land prices, is the subject of the article by Gózán. The

paper by Myrberget pursues the question of the extent to which the usually available hunting statistics can be used in Norway for statistics on species population size and composition. Schamberger carefully reviews techniques used for the monitoring of wildlife habitat, which is of crucial and growing importance to modern nature conservation. Finally, Nevalainen and Shanmugam have contributed a thorough and comprehensive analysis of environmental time series, a branch that is presently growing to some importance.

In presenting a special issue on the subject of environmental and ecological statistics, the Statistical Journal follows its established tradition to publish in this new field of statistical preoccupation. There will certainly be future occasions where experts from this field can share their work with the international professional audience.

The Editor