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Topic (i): New opportunities created by cooperation and partnership

**USING THE TOPOGRAPHIC MAP FOR STATISTICS: SOME ORGANISATIONAL
ASPECTS**

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Contributed paper

I. INTRODUCTION

1. Already almost a decade ago, the question at Statistics Netherlands (CBS) was raised as to how to make use of a mid-scale digital topographic map for statistical purposes, particularly with regard to statistics on land use. At that time, however, this topographic data source was not yet available for the whole territory. Moreover, the costs were likely to be too high to fit into the available budget. The inadequate state-of-the-art and the costs involved prompted CBS to abstain from using this data source at that time, although the benefits of the introduction of this data source for statistical purposes were obvious.

2. Since then there have been some important developments that have altered this situation. A few years ago the digital topographic map became available for the whole country. Moreover, the financial feasibility no longer causes a problem for CBS, due to the strategic partnership of our Office with the Department of Housing, Regional Development and the Environment concerning the implementation of this data source. This paper describes these developments from an organisational viewpoint.

II. TOPOGRAPHIC MAP AND AREA-BASED STATISTICS

3. The digital topographic map (scale 1:10.000) of the Netherlands is a product of the Topographic Agency - the national Mapping Agency in the Netherlands (TDN). The first edition of this digital map – called TOP10Vector - was released at the end of 1997. Since then parts of this map are updated annually. From a statistical viewpoint the Digital Landscape Model (DLM), which provides the topography itself, is of interest. The overall DLM consists of real area representations of land cover elements with a minimum width of 2 metres for roads and of 6 metres for ditches, canals, rivers and lakes. Narrower roads and ditches as well as railroads are represented as separate line elements or as multi-coded area borders. The land cover areas are classified into main categories such as area covered by buildings, roads, vegetation elements and hydrography. The area covered by buildings is represented in the map as an area covered by (1) a single building, when the area exceeds 9 m²; (2) a building block, when the area exceeds 2,000 m² or when terraced houses are linked together all around; and (3) a high building, when the height exceeds 35 metres or when the building has more than 10 floors.

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4. Some months before the first edition of the topographic map was issued, CBS was requested by the Ministry of Home Affairs and the Finance Department to carry out a pilot project with the aim of compiling area-based statistics using that map for the municipal authorities as an information base to allocate funds. These statistics related to (a) area covered by buildings; (b) area land, area coastal waters and area inland waters; (c) length of the borders of all inland waters (rivers, canals, ditches, lakes and so on); and (d) area Holocene clay and peat, which are found up to a depth of 8 metres from ground level and the cumulative thickness of which should be at least 5 metres. The calculations of the area of Holocene clay and peat should be made using an additional digital map with the respective boundaries of these soils in combination with the topographic map. The basic map of Holocene clay and peat was compiled by the 'Netherlands Institute of Applied GEOScience TNO' by order of the Finance Department.

5. In order to compile the statistics requested it was necessary to arrive at an agreement with the TDN about the use of the TOP10Vector. The starting point for the respective negotiations was the standard agreement the TDN uses to regulate the availability of its TOP10Vector for users. In this standard agreement the specification of the application (or applications) for which the TOP10Vector will be used, play(s) a central role. The fact is that TDN makes the digital map only available in terms of rights to use individual selections of its content, depending on the applications needed. Moreover, the specification of the application also influences the cost, since the pricing is a function of those rights: the more rights in terms of selections to be used, the higher the costs.

6. In the negotiations, TDN offered various alternatives ranging from a regulation for every individual application together with a delivery of the respective elements from the TOP10Vector, to a regulation for all four applications mentioned above together with the delivery of the complete TOP10Vector. After consultation with the Finance Department – the financier for the purchase of the TOP10Vector - the latter alternative was chosen. Consequently, in the final agreement it is stated that CBS can utilise the TOP10Vector data exclusively for the compilation of the statistics required for the implementation of the Act on the Municipal Fund. Moreover, it has been stipulated in the agreement that CBS is authorised to publish visualisations of the respective elements of the TOP10Vector either by way of maps or hardcopies as part of the implementation of the Act on the Municipal Fund exclusively, or as part of official documents or reports.

III. TOPOGRAPHIC MAP AND LAND USE STATISTICS

7. Since the end of the 1980s, CBS produces its land-use statistics by means of an in-company made digital land-use map. The geometrical consistency of the TOP10Vector combined with the large amount of data on land cover that it contains, forced CBS to investigate the feasibility of using the TOP10Vector for the improvement of the in-company land-use map. Moreover, the use of the TOP10Vector as input for the digital land-use map would render some of CBS' own inventory work superfluous. For these reasons CBS carried out a preliminary study, begun three years ago, on the use of the TOP10Vector as a basic data source for land-use statistics. For this study a test licence for parts of TOP10Vector already available at the Bureau (see above) was obtained from the TDN. The main conclusion of the study was that TOP10Vector was technically suitable for use as an integration framework for the digital land-use map and, hence, for the statistics on land use.

8. TDN was also interested in improved coordination between its digital geographical map and the CBS digital land-use map, since TOP10Vector was felt to be unsatisfactorily used as a basic data source for policy purposes. A land-use map based on the TOP10Vector was considered as a more satisfactory instrument for such purposes. Moreover, the policy development on standardisation in the provision of geographic information, which was begun at that time, was of importance for both organisations. That development called for streamlining of basic geometrical data.

9. A joint CBS/TDN study was, therefore, carried out into matters including the feasibility of cooperation between the two organisations on the production (by CBS) and dissemination (by TDN) of a

set of geometric land-use data. The study was carried out in the second half of 1999. One of the things to emerge from that study was that it would be possible in the short-term to produce a digital land-use map in line with TOP10Vector by CBS. Two major problems which prevented the immediate use of the topographical base map within CBS had to be solved by the task force, namely the pricing of the topographical map as well as the copyright of the product in view. During the study, however, it became obvious that both problems were strongly related.

10. The pricing of the topographical base map was a problem, since it did not fit into the CBS policy to make use of registrations held by organisations against minor costs, or even with no costs. Since TDN is responsible for half of the amount of money involved in the production of topographical information, a solution had to be found with regard to the recovering of the costs. The solution was found in the split-up of the right to exploit the product in view by TDN and the right to make use of the product in view for statistical purposes by CBS. The solution for the second problem - the copyright of the product in view - was found in a shared holdership of that product by CBS and TDN as well as in a declaration that the mutual interests of both organisations would be respected.

11. The study resulted in a report containing positive advice that was adopted by the boards of directors of both TDN and CBS at that time, followed by consultations on a covenant on this matter. Agreement on the content of such a covenant was almost reached, when the Department of Housing, Regional Development and the Environment in the second half of last year intervened in the planned cooperation between CBS and TDN. That Department did so in its capacity as government body assigned with the task to coordinate the geo-information infrastructure in the Netherlands.

12. The immediate causes of intervention were the intended merging of the TDN with the Land Registry Office (LRO) in the Netherlands, and the future status of the TOP10Vector. With respect to the LRO/TDN merging process, the Department of Housing, Regional Development and the Environment expected that this intended merge would require a revised law, in which the tasks of the new organisation LRO/TDN would be laid down again. In this revised law provisions would certainly be made with regard to the exploitation of files and digital maps by this new administrative organisation.

13. With respect to the future status of the TOP10Vector, discussions were ongoing as to whether this digital map as such should become the geographical standard to be used by all levels of government as well as by the business community; also as to whether this map should be produced according to the principle of consumer-paid services or as a public good. Both questions are now in the political decision-making process, the outcome of which is yet uncertain.

14. This intervention has ultimately led to a strategic partnership between the Department of Housing, Regional Development and Environment and CBS, since that Department recognised the importance of a digital-land use map in which the geometry of the TOP10Vector has been incorporated. So, the Department itself and TDN made an agreement about the acquisition of the TOP10Vector by that Department, on the basis of which CBS can produce the geometrically standardised land-use map as planned.

15. The strategic partnership between the Department of Housing, Regional Development and Environment and CBS as regards the production and dissemination of the standardised land-use map has been laid down in a covenant. Based on this covenant, CBS now disposes of the TOP10Vector without any financial consequences for the production of that standardised map. Moreover, CBS is authorised to use both the standardised land-use map and TOP10Vector to produce integrated statistics on land use and physical infrastructure. Finally, the covenant ensures the availability of this standardised map for potential users against reasonable costs.

IV. SOME FINAL REMARKS

16. The incorporation of the geometry of the TOP10Vector into the land-use map will bring a number of important benefits for statistics. One of these benefits has already been mentioned above, namely the compilation of integrated statistics on land use and physical infrastructure. Figures on area and length of the infrastructure (roads, railways, and navigable waterways) can now be produced from one combined source. Another benefit refers to the land-use statistics. It will now be possible to compile a more detailed breakdown of the area figures for main functional land-use groups (land-use map) by type of land cover (TOP10Vector). For example, it will be possible to calculate how much, in hectares, of the land used for agricultural purposes is arable land, grassland or orchards.

17. The production of a standardised land-use map can also be of importance for the development of other harmonised digital maps. This is, for example, the case for a digital map with data on forests, nature and landscape. Such a map can be based on the geometrically standardised land-use map. At the time of writing, the National Reference Centre for Nature Management of the Ministry of Agriculture, Nature Management and Fisheries is carrying out a pilot study on this subject. The result of this pilot study should consist of a report in which method and financial feasibility of such a map will come up for discussion. The standardised land-use map as the base for such a map is, however, now a point of discussion for the National Reference Centre for Nature Management.