POTENTIAL CONTRIBUTIONS OF DIGITAL CARTOGRAPHY AND SPATIAL ANALYSIS IN ASSESSING IMPACTS OF ACID DEPOSITION

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ABSTRACT

Industrial nations in northern middle latitudes have become
acutely aware of adverse effects of acid rain, or acid
deposition. One strategy to achieve better understanding
of the problem, and to win support for a mitigation pro-
gram, is to estimate tangible costs to building materials.
A key facet of this strategy is to compile a region-by-
region inventory of the amount, kind, and location of
building materials susceptible to acid deposition. A
spatial approach to this problem assumes that the presence,
form, and function of buildings--and of the materials of
which buildings are constructed--are related to the pat-
terns of land use. The presence or absence of buildings
and other infrastructures is a primary clue in the mapping
of land use and land cover. Prototype metropolitan and
regional building materials inventories are already under-
way, and automated cartographic and geographic information
system techniques are used to perform several related
tasks: (1) to adapt an existing digitized land use and
land cover inventory, in combination with other data sets,
in a problem-solving context; (2) to relate land use data
to statistical areas used in the Census of Population and
Housing; (3) to stratify sample areas and choose sample
buildings for determining the amount of selected building
materials present per unit area of each land use class and
area sampling frame; and (4) to generate prototype comput-
erized thematic maps, graphics, and area statistics. In
addition to the ongoing building materials inventory, the
same approach is being considered to assess the impact of
acid deposition on other broad land use categories already
existing in the data base such as forest land, agricul-
tural lands, and areas of inland water.