
The Groundwater Protection Scheme in Ireland: A RISK-BASED TOOL FOR Effective Land-use Planning

Donal Daly¹ and Bruce D. Misstear²

¹Geological Survey of Ireland, Beggars Bush, Haddington Road, Dublin 4 (e-mail: donaldaly@gsi.ie)

²Department of Civil, Structural & Environmental Engineering, University of Dublin, Trinity College, Dublin 2 (e-mail: bmisstear@tcd.ie)

ABSTRACT

The groundwater protection scheme in Ireland provides an effective means of assessing the impacts of potentially polluting activities on groundwater resources, and hence of providing appropriate guidance on development. The scheme involves the classification of land into different zones according to the level of risk of groundwater pollution (based on maps of groundwater vulnerability, resource classification and source protection areas), and the production of development guidelines, or 'responses', for each zone for activities such as landfills and on-site wastewater treatment systems. The scheme has a number of features in common with the groundwater protection policy in England and Wales, but includes features specific to hydrogeological conditions and pollutant sources found in Ireland. The preparation of schemes for individual counties is facilitated by the use of GIS systems, and much of the information produced will be useful also in the preparation of plans for River Basin Districts, as required under the new EU Water Framework Directive. The directive requires that groundwater and surface water are managed in an integrated way, and the integration of groundwater protection schemes with measures for the protection of surface water is one of the challenges to be addressed in the future.

INTRODUCTION

Land-use planning and environmental planning (which in this paper is taken to encompass environmental impact assessment, integrated pollution control licensing, waste licensing, water pollution legislation, and so on) are the main approaches used in Ireland for trying to achieve a balance between the need to protect the environment and the need for development. However, land-use planning is a dynamic process with social, economic and environmental interests and impacts influencing to varying degrees the use of land and water. In a rural area, for example, farming, housing, industry, tourism, conservation, waste disposal and water supply are potentially conflicting interests, and may compete for priority.

A key requirement in good decision-making, at all levels of environmental planning (including developers and regulatory authorities), is the availability of reliable information on all relevant issues, in a form that can be readily used. In Ireland, groundwater protection schemes are becoming an effective means of providing relevant information on groundwater (including resources, vulnerability and general hydrogeology), and of integrating geoscientific information on rocks and groundwater into land-use planning. Schemes are prepared on a county by county basis, and follow the guidelines laid down in the national groundwater protection scheme.

This document updates Groundwater protection: Principles and practice (GP3). It contains position statements which provide information about the Environment Agency's approach to managing and protecting groundwater. Groundwater protection is long term, so these principles and position statements aim to protect and enhance this valuable resource for future generations. Important note. The Environment Agency adopts a risk based approach using a hierarchy of SPZs, DrWPAs and aquifer designations. The Environment Agency may object in principle to, or refuse to permit, some activities or developments if they have potential to adversely affect groundwater. However, note that SPZs and aquifer designation are not site-specific risk assessments. The quality management system should use a risk-based approach as described below.

5.0.1 Critical Process and Data Identification. During protocol development, the sponsor should identify those processes and data that are critical to ensure human subject protection and the reliability of trial results.

5.0.2 Risk Identification. The sponsor should identify risks to critical trial processes and data. The sponsor should periodically review risk control measures to ascertain whether the implemented quality management activities remain effective and relevant, taking into account emerging knowledge and experience.

5.0.7 Risk Reporting. Department of land use and cadaster of the State University of Land Use Planning. (15 Kazakova st., Moscow, 105064 Russia) S.A. Zhilin suggests introducing the existing system agricultural land use in the form of a scheme (Fig. 1) [12]. Fig. I.V. Butko believes that the use of land resources, including agricultural land will become effective only if it makes it possible to combine «the economic interests of society as a whole, groups and individuals, solve social problems and avoid exceeding environmental restrictions» [4]. Based on the information collected, the main goals of agricultural land use should be determined and an assessment of the achievement of these goals should be made. In the process of the first stage, it's necessary to identify compliance Land-use planning is the process of regulating the use of land by a central authority. Usually, this is done in an effort to promote more desirable social and environmental outcomes as well as a more efficient use of resources. More specifically, the goals of modern land-use planning often include environmental conservation, restraint of urban sprawl, minimization of transport costs, prevention of land use conflicts, and a reduction in exposure to pollutants. In the pursuit of these goals, planners...