

Economic analysis, a decision-support tool when choosing how best to protect water abstraction points

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In order to obtain and preserve drinking water that meets required standards, local authorities can choose between two types of measures:

- Preventive measures involving the establishment of sanitary protection zones around water abstraction points or catchment areas.

Establishing sanitary protection zones around water abstraction points or catchment areas involves prescribing conditions for current or future activities. If the raw water is already of sufficient quality, these prescriptions are control instruments that must be applied to preserve the resource, and need only avoid or reduce the impact of point sources of pollution and/or diffuse pollution that could have a harmful effect on water quality. Those instruments are often implemented as cross-compliance measures when they were applied to agricultural activities, but in most cases they consist of agro-environmental measures that farmers adopt willingly in order to reduce agricultural pollution. For non-agricultural, industrial or urban activities it may be necessary to prescribe that existing facilities be brought in line with standards.

- Curative measures involving water treatment to ensure that it meets regulatory requirements.

Comparing the economic costs of these preventive and curative solutions can be seen as a decision-support criterion for local authorities who need to find an economically acceptable solution that is also to the general advantage (potability standards).

At the moment, studies attempting to make an economic assessment of the measures applied to achieve good quality water are mainly based on cost-benefit analyses that only take into account as a criterion the efficiency of the measures taken. The aim of **this study is to produce a protocol for a socio-economic analysis with which to assess any plan for the protection of drinking water catchment areas**. This protocol is based on the cost-benefit method but incorporates the criterion of the *efficiency* of the measures.

The Discussion section will consider the assessment at farm level of the impact of introducing contracts concerning several agro-environmental measures on the overall economic efficiency of farms and also on the partial efficiency of each activity: "Phy" efficiency for plant protection, "N" efficiency for fertilisation, etc. Our working hypothesis is that the adoption of such agro-environmental measures improves the economic efficiency of farms. The efficiency of measures is calculated using the Data Envelopment Analysis method. This efficiency criterion is considered to be a useful tool for decision-makers needing to choose measures that will be of least cost to the community as a whole.

Keywords: protocol for a socio-economic analysis, efficiency, agro-environmental measures , water abstraction points.