

The reference level determining subsidies for good farming practices¹

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Agriculture has a major impact on the environment, especially on land use, soil, water, biodiversity and landscapes. There is a general recognition of the need to enhance the beneficial, and reduce the harmful environmental impacts of agriculture to ensure the sustainability of resource use. In doing so, it is important to bear in mind the main characteristics of environmental impacts of agriculture. These main characteristics depend largely on the extent to which environmental impacts are linked to farming practices, as many of the impacts are closely related to the use of private-owned land which is often the limiting factor of production.

A necessary condition for taking into account and allocating environmental costs and benefits is the existence of property rights, which evolve over time in response to changing circumstances, and are secured only when accompanied by penalties on those who infringe them. To provide the necessary parameters within which producers can expect to be charged or remunerated for the environmental effects they generate, it is necessary to clearly define and effectively implement property rights associated with the appropriate reference levels of environmental performance to be achieved at the farmers' expense.

Who to pay and who to charge for agri-environmental quality?

It depends on the existing:

- property rights, which may be defined by agri-environmental reference levels;
- societal preferences, which may be defined by agri-environmental targets; and
- technological conditions, which determine good farming practices.

Property rights are the rights concerning the use and disposal of property, explicitly defined and enforced by law or implicitly based on tradition. In contrast to industry, property rights in agriculture are closely related to land use for which traditional or "presumptive property rights" can be claimed. But when societal claims on agri-environmental quality are over and above traditional property rights, the pursuit of environmental objectives may infringe on property rights. This may require compensation for expropriation of property rights and imply a change from presumptive into effective rights defined by reference levels.

Agri-environmental reference levels are measurable levels of environmental quality that should be achieved at the farmer's own expense. They depend on property rights and make a distinction between situations where farmers bear the costs of avoiding environmental damage and those where farmers may claim remuneration for environmental services provided.

¹ This presentation is based on *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches*. OECD, Paris 2001.

Agri-environmental targets are quality levels of soil, water and air that are considered desirable for human health and the environment, which are intended to be achieved in the future. They depend on the prevailing societal preferences and technological conditions, and may be defined, for example, in terms of the levels of environmental loading (e.g. x% reduction from the current levels of nitrates in water), farming practices (e.g. increase of x% of farmers implementing specific rotations or integrated pest management), or maintenance of habitats (e.g. x% increase in the area under semi-natural grassland, or the density of specific plant species).

How to define agri-environmental reference levels?

Agri-environmental reference levels may be defined in terms of:

- the environmental outcome to be achieved;
- the appropriate farming practices necessary to achieve such an outcome (e.g. maintaining buffer zones along water courses); or
- the emission levels associated with the outcome (e.g. quantity of sediments, nutrients and pesticides in water courses).

However, given the non-point source nature of many environmental impacts of agriculture, reference levels cannot always be defined in terms of emissions levels, and the value of environmental quality is often difficult to establish. This is why the reference levels are often defined in terms of good farming practices, rather than in terms of a desired outcome or emission levels.

Good farming practices are usually site- and farm-system specific and depend on natural and technological conditions, types of production systems, and social perceptions. Therefore, good farming practices and the associated level of environmental performance or reference level are not a unique point on the scale of environmental quality, and they vary across countries and regions.

When to charge or pay farmers for their environmental performance

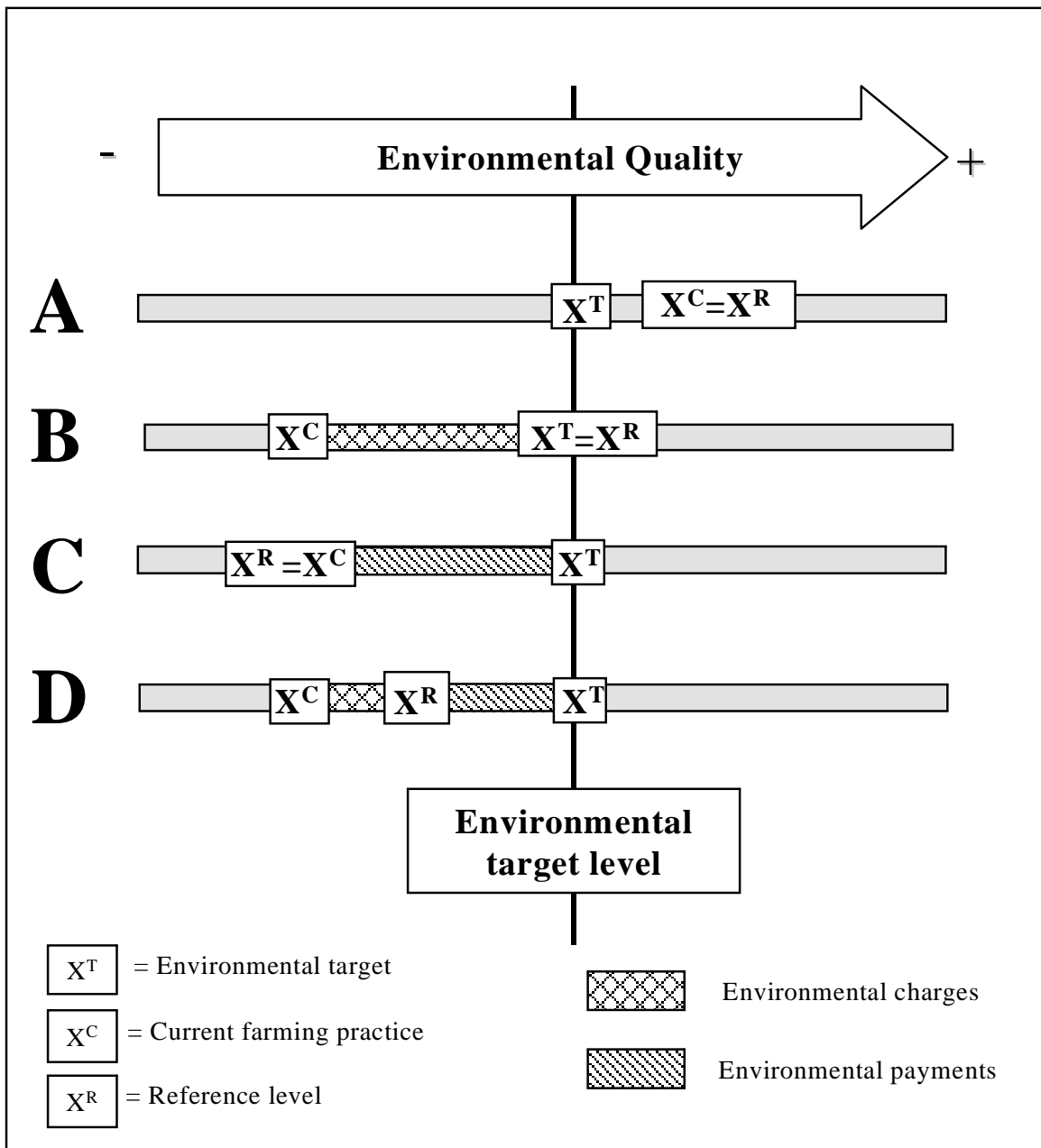
It depends on:

- the preferences of the society in terms of the level of environmental quality defined by specific agri-environmental targets;
- the agri-environmental reference levels defined in terms of property rights and good farming practices; and
- the current environmental performance defined by current farming practices.

The following Chart illustrates four different cases to which farmers may be confronted in relation to such parameters, which vary between countries (where X represents the level of environmental quality corresponding to environmental targets (X^T); reference levels (X^R); and current farming practices (X^C)). All cases (A to D) represent an identical environmental outcome and allocation of farm resources as the environmental target X^T is the same. What differs among these cases is the distribution of costs associated with achieving the defined environmental target (i.e. who is paid and who is charged).

- *Case A* represents a situation where current farming practices provide a level of environmental quality corresponding to a reference level ($X^C=X^R$) above the environmental target (X^T). Thus, farmers are already using the farming practices required for achieving the socially desired environmental outcome. With X^T and X^R achieved at zero opportunity costs, no policy action is needed. In such case, the reference level X^R would normally be achieved through current farming practices X^C (here referred to as “good farming practices”).

Allocation of environmental costs and benefits



- Case B** represents a situation where current farming practices (X^C) provide an environmental performance below the reference level defined at the level of the environmental target ($X^T = X^R$). In this case, farmers need to adopt farming practices required to achieve the desired environmental target level (X^T) at their own expense, which is consistent with their own property rights and the polluter pays principle (PPP).

However, applying the instrument of transferable discharge permits², could also permit to achieve the desired environmental quality.

- **Case C** represents a situation where current farming practices achieve an environmental performance corresponding to the reference level ($X^C=X^R$) that is below the target level (X^T). As in this case property rights in land use are attributed to farming practices achieving an environmental reference level below the environmental target level, farmers may need to be compensated for changing from current farming practices (X^C) to practices required to achieve the environmental target (X^T). This is consistent with the PPP as this principle does not imply an uncompensated expropriation of private property rights where the productive use of privately owned resources and factors of production competes with the pursuit of environmental objectives. However, environmental policies often face a legal context where property rights in land use are merely “presumptive” rights without being based on explicit legal definitions. In such cases, the definition of property rights might well move from presumptive rights at X^C to more restrictive ones at X^T .
- **Case D** represents a situation similar to Case C where current farming practices (X^C) provide an environmental performance below the environmental target level (X^T), but with the reference level above the environmental performance level of current farming practices (X^C) and below the environmental target (X^T). For improving their environmental performance, farmers need to adopt appropriate farming practices at their own expenses up to the reference level (X^R). Requirements for farmers to further improve their environmental performance beyond X^R (for example, to reach the environmental target X^T) need to be remunerated, which is consistent with their own property rights and the PPP.

Concluding remarks

Environmental concerns in agriculture are important for all OECD countries. Agricultural policy reform will affect agricultural production and trade, as well as the environmental performance of agriculture. But changes in environmental policies will also affect agricultural production and trade. There is a need to ensure the compatibility of environmental objectives of policies with economic, social, trade and other international objectives. The combination of agricultural and environmental policy measures needs to be carefully designed and implemented to ensure coherence so that they improve environmental quality in the most cost-effective and transparent way, with least distortion to production and trade. Defining the rights and responsibilities of farmers’ vis-à-vis the rest of society is crucial in order to determine who pays for the environment. But the attribution of property rights that define the desired level of environmental performance to be achieved at the farmers’ expense has important implications for the distribution of income and wealth and equity.

2. Permits that specify an allowable rate of pollution that can be bought or sold.