Foreword

This background report on environmental cross compliance was carried out under the auspices of the OECD Joint Working Party on Agriculture and the Environment of the Committee for Agriculture and the Environment Policy Committee. It was written by Wilfrid Legg and Dimitris Diakosavvas, respectively Head and Senior Economist in the Agricultural Policies and Environment Division of the Trade and Agriculture Directorate. Françoise Bénicourt, Theresa Poincet and Louise Schets prepared the report for publication.

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Overview

OECD countries aim to ensure the production of food, feed, fibre and fuel, while achieving a wide range of environmental and social objectives. Typically, policy objectives relate to the security of supply, the safety of food, the welfare of farm families, the viability of rural areas, while ensuring the health of the environment and the good management of animals. Increasingly, public interest is placing more emphasis on the processes and methods used in the agri-food production chain – as well as the effects on the environment and the longer term sustainability in particular of the land and water resources on which the sector heavily depends.

To this end, governments have put in place a variety of agricultural and agri-environmental policy support instruments, environmental regulations and other policies that apply across the economy as a whole. There is a complex interaction of these policies: agricultural policy instruments as well as agri-environmental policy measures affect the environmental performance of agriculture, while environmental regulations and economy-wide policies have an impact on the economic performance of the sector.

Over the last decade, agricultural policy reform in many countries has led to changes in the way in which support is provided to farmers. In some OECD countries progress has been made in moving away from policy measures linked to commodity production towards those that are more decoupled from current production parameters. At the same time, some countries may find that decoupling provides an opportunity to use existing farm income support mechanisms to address or reinforce those environmental and other policy objectives that are of heightened concern to society. In this respect, various approaches have been adopted that impose conditions related to the environment, identification and welfare of animals, or maintenance of public, animal and plant health on the granting of farm income support payments or withdrawing payments if these conditions are not met. Such mechanisms linking policies that provide or withdraw such payments to adherence to environmental or other policies are generally termed "cross compliance". This document focuses on *environmental* cross compliance, the main area in which cross compliance is used across OECD countries, although the underlying analysis may also be applicable to the other areas where cross compliance is used. It should be stressed that several countries do not implement a cross compliance approach in order to achieve farm income, environmental and other policy objectives in their policy mix.

With view to improving the coherence of agricultural and environmental policies the *rationale* for environmental cross compliance (henceforth termed cross compliance) in OECD countries involves at least three related elements: income payments to farmers may appear more acceptable to society when they must meet environmental requirements; leveraging or linking income support payments can better ensure compliance with environmental requirements; and policy-related transactions costs can be reduced. While the term cross compliance indicates that a number of policy instruments are brought

together or linked, there is no unique approach to cross compliance implemented in OECD countries. However, at least two *necessary conditions* for any cross compliance mechanism are: there is a system of income support payments (or input subsidies) in place that can be leveraged with respect to specific farmers meeting environmental requirements as it is not possible to link the across-the-board market price support instruments (such as border measures) to meeting environmental requirements (except in so far as that would apply uniformly to all farmers); and there are explicit or implicit "reference levels", which define the respective responsibilities of farmers and society in providing environmental services and thus the allocation of the costs of such improvement between farmers and society (via policy actions).

While there is no unique approach to cross compliance, it is but one among several other possible policy mixes to achieve policy objectives related to farm incomes and environmental performance. Even if cross compliance approaches are *effective* in achieving policy goals there may be other more cost *efficient* ways to do so where the primary objective of the support payment is the compliance with environmental standards. These could include, for example, implementing a range of separate, non-linked policy measures: environmental regulations and associated penalties and charges that apply to all farmers irrespective of whether they receive other support payments; agricultural income support payments that apply to all farmers or a targeted group of farmers; and agri-environmental payments targeted to those eligible farmers that provide environmental services that go beyond what society expects of them. An evaluation of the effectiveness and efficiency of different cross compliance approaches used in OECD countries, and alternative policy mixes to achieve income and environmental goals can be carried out only when sufficient data are available as it is ultimately an empirical matter. At this stage this document does not attempt to make such an evaluation.

This document first looks at the possible policy options to provide income support and separately to improve environmental performance, which includes defining the relevant terms; examines the links between environmental regulations, agricultural income support payments, agri-environmental payments and cross compliance; and describes the cross compliance approaches in OECD countries. The document includes a chart illustrating the concept of environmental reference levels and targets in the Annex, based on an OECD synthesis report in 2001, *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches.*

Chapter 1

Policy options to provide income support and improve environmental performance

In order to analyse the various cross compliance approaches used in OECD countries, it is useful to put those approaches within the context of the range of policy instruments and instrument mixes to support farm incomes and those to improve environmental performance. This section examines these issues in a generic way, recognizing that countries are not starting from scratch in designing and implementing policy.

OECD countries have a long experience with regard to implementing *farm income* and other *agricultural support* measures. However, there are significant differences with regard to policies and measures used to support farm incomes. Only in very few countries are economy-wide policies used, rather than measures specifically targeted to support farm incomes. In most other countries the support mechanisms vary considerably, ranging from a heavy dependence on market price support and trade measures to the use of payments to farmers individually and sector-wide provision of support for general services that apply to the agricultural sector as a whole.

Concerning *environmental performance*, in all countries *environmental regulations* apply, but sometimes they are specific to agriculture or land-using industries. Some countries have extensive and up-to-date information on environmental conditions at local level, but in other countries that is not the case, while in all countries some of the environmental issues are site specific. Environmental regulations set mandatory limits to the amount of permitted water and air pollution or chemical use, or for the prevention of certain farm practices, enforced through fines for violation or negligence. In other words, regulations have the effect of guiding farmers' actions and practices in order to reduce environmental damage.

However, agriculture also plays a major role in some countries in the provision of environmental services such as carbon sequestration, flood control, ecosystem conservation, and shaping and protecting landscapes. In many countries specific *agri-environmental payments* are available to farmers in return for the provision of such services from agricultural activities when there is no market to remunerate provision. Other payments are used to remunerate farmers for investments that reduce environmental pollution (such as animal manure facilities or riparian fencing). Agri-environmental payments are used for the adoption of certain farm practices (such as low-input or organic production methods) to avoid or limit pollution and resource depletion. Agri-environmental payments are intended to compensate for additional costs incurred or income foregone due to the voluntary adoption by farmers of environmental commitments going beyond the reference level.

At the other end of the policy spectrum, in a few countries governments have encouraged groups of farmers in localities such as watershed areas to set up (often with seed money) *voluntary co-operative arrangements* among themselves to collectively address common problems of water pollution and soil erosion.

A distinction needs to be made between *compliance* and *cross compliance* requirements. Compliance is the requirement that farmers meet specified criteria or fulfil conditions in order to be eligible to receive an agri-environmental payment. (It is also of course a requirement that farmers *comply* with environmental regulations – in the EU such non-compliance may induce reduction or withdrawal of payments). Cross compliance requirements provide a link between one or more policy instruments such that farmers are required to fulfil specified conditions in order to be eligible to receive an agricultural supports or payments (in the EU they are to avoid a reduction or withdrawal). In all countries implementing cross compliance a link is made between two or more policy measures: in the case of the European Union and Switzerland, non-compliance of the respective standards by farmers leaves them liable to a reduction or complete loss of agricultural payments (Chapter 3). In the case of other countries, where the primary objective is farm income support, eligibility of payments depends on farmers meeting various environmental performance or practice conditions. In the case of an agri–environmental payment the primary objective is to achieve a given level of environmental performance, to which eligibility for payments depends on farmers voluntarily meeting specified conditions. Table 1.1 summarises the definitions of terms used in this report.

For cross compliance approaches to be applied it is necessary to have a linkage mechanism between two or more policy instruments. In countries where only *economy-wide income* and *environmental instruments* are implemented, mechanisms to ensure some minimum level of welfare and adherence to environmental regulations, targets and regulations (for example in relation to water and air pollution), apply to both farm and non-farm families and enterprises. As there are no specific farm income support measures, environmental objectives have to be achieved through the environmental policy instruments as, by definition, there can be no leverage through links to farm income support. In this case, by definition, cross compliance is not an option, but compliance with environmental regulations is a legal obligation.

In countries where *sectoral farm income* and *economy-wide* or *agricultural-specific environmental instruments* are implemented, mechanisms to ensure some minimum level of welfare for farm families apply only to farm families (although they may be closely integrated with economy-wide mechanisms). Environmental regulations apply to farm and non-farm activities alike. As there are specific farm income support measures, leverage to achieve environmental objectives is an option, but this crucially depends on the way in which farm income support is provided. Only in cases where *budgetary payments* or *input subsidies* are provided is the option of leveraging environmental objectives with cross compliance approaches possible unless overall legal obligations exist.

Table 1.1 Definitions of terms

Agri-environmental payment	A payment offering farmers remuneration to *voluntarily* undertake specific activities such as planting trees, creating wildlife habitat or conserving traditional breeds of animal, or to farm in a more environmentally sustainable way, or to invest in pollution-reduction.
Environmental regulation	A legally binding, *obligatory* requirement that defines the limit to the level of specific inputs applied on farms, the level of pollution in water courses and air, or the type of farm practice adopted.
Compliance with agri-environmental payments	In order to be eligible to receive an agri-environmental payment farmers are required to commit themselves to go beyond the reference level in providing environmental services and to respect environmental regulations and standards.
Cross compliance	In order to be eligible to receive an agricultural income support payment farmers are required to meet a number of conditions related to their environmental performance.
Income support payment	A payment resulting from a government programme, paid directly to the farmer from government funds, whose objective is to support farm income above what can be earned from the market.
Eligibility conditions	Conditions determining which individuals (units) from the population of farmers (agricultural holdings) may participate in the income support payment scheme to which cross compliance is attached.
Entitlement	The right enjoyed by those who satisfy the eligibility conditions to receive income support payments. Entitlements may or may not be subject to cross-compliance conditions. Entitlements may be vested in individuals, or may be attached to land/farms, depending on the eligibility conditions.
Environmental Target Level	Specified environmental practices or quality determined by governments and reflecting societal preferences.
Environmental Reference Level	The minimum level of environmental quality that farmers are obliged to provide at their own expense.
Bottom-up approach	Approach whereby farmers themselves propose, subject to programme guidelines, those farm practices and potential improvement in environmental performance (or other objectives related to the treatment of animals, animal and plant health) that will serve as compliance conditions; in the European Union also includes proposals coming from producers to local authorities in the rural development framework.
Performance-based conditions	Performance-based compliance conditions stipulate environmental outcomes, such as maximum soil loss, nutrients and pathogens in water, or number of plant species hosted, that must be achieved to be eligible for payments.
Practice-based conditions	Practice-based compliance conditions stipulate specific management practices, such as conservation tillage or maintenance of land cover, which must be adopted to be eligible for payments beyond the reference level.

Cross compliance requirements – by linking the respect of environmental conditions or regulations to the granting of agricultural support payments – have the potential to contribute to improving environmental performance of agriculture compared to a situation where the same level and structure of payments are made without any conditions attached. However, comparing different cross compliance approaches or between cross compliance and other approaches and policy mixes (such as agricultural support payments with no environmental conditions attached or with targeted agri-environmental payments) to achieve farm income and environmental objectives is an empirical question and is dependent on the baseline chosen for making such comparisons.

In generic terms the potential advantages and disadvantages of cross compliance can therefore be expected to vary. A "checklist" of the criteria to weigh up the advantages or disadvantages of cross compliance approaches would need to address both general and specific issues.

Concerning issues related to *policy coherence*, these include the extent to which cross compliance approaches lead to:

- greater synergies between agricultural and environmental policies;
- public acceptance of agricultural income support payments to farmers though meeting environmental requirements; and
- further reform of agricultural policies, when such reforms are dependent on meeting environmental standards.

Concerning issues related to *farmer involvement in schemes*, these include the extent to which cross compliance approaches influence the:

- inclusion of producers who would otherwise not enrol on a voluntary basis;
- uptake of voluntary agri-environmental programmes that involve stricter conformity requirements and better legal compliance;
- perception by farmers of compensation for producing environmental benefits, depending on whether farmers are able to perceive a link between compliance and receipt of payments.

Concerning issues related to *agri-environmental* performance, these include the extent to which cross compliance approaches have impacts on the:

- application of the Polluter-Pays-Principle in agriculture;
- awareness of farmers of the consequences of their actions on the environment, in particular if cross compliance is made legally binding;
- leverage on farmers through the provision of payments (or the risk of their withdrawal) to conform with existing legislation and codes of practice, in situations where codes of practice form part of the cross compliance conditions;
- the number of producers who are not eligible for agricultural support payments who implement environmentally beneficial practices;
- ability to meet minimum environmental standards without any additional payment where the standards define the baseline for agri-environmental policy measures;
- balance in environmental obligations in the case where the environmental obligations linked to cross compliance go further than the regulations, if some sectors receive agricultural support payments and others do not;
- certainty of environmental outcomes if cross-compliance measures are more general and less targeted to the situation on each farm;

- environmental performance if agricultural support payments are counter-cyclical, given that there is an inverse relationship between economic and environmental incentives;

- environmental performance if there are homogeneous requirements across all farmers, yet individual farmers have different compliance costs.

Concerning issues related to administrative arrangements and *transaction costs*, these include the extent to which cross compliance approaches affect the:

- potential to economize in administrative and policy transaction costs compared to the separate administration of agricultural income support, environmental regulations and agri-environmental payments to ensure a given level of environmental quality;

- monitoring costs where cross compliance measures are targeted closely to the situation on each farm, although administrative and monitoring costs could be lower where there are sector-wide measures;

- incentive for environmental improvement from financial penalties for non-compliance if compliance conditions are not part of statutory requirements; and

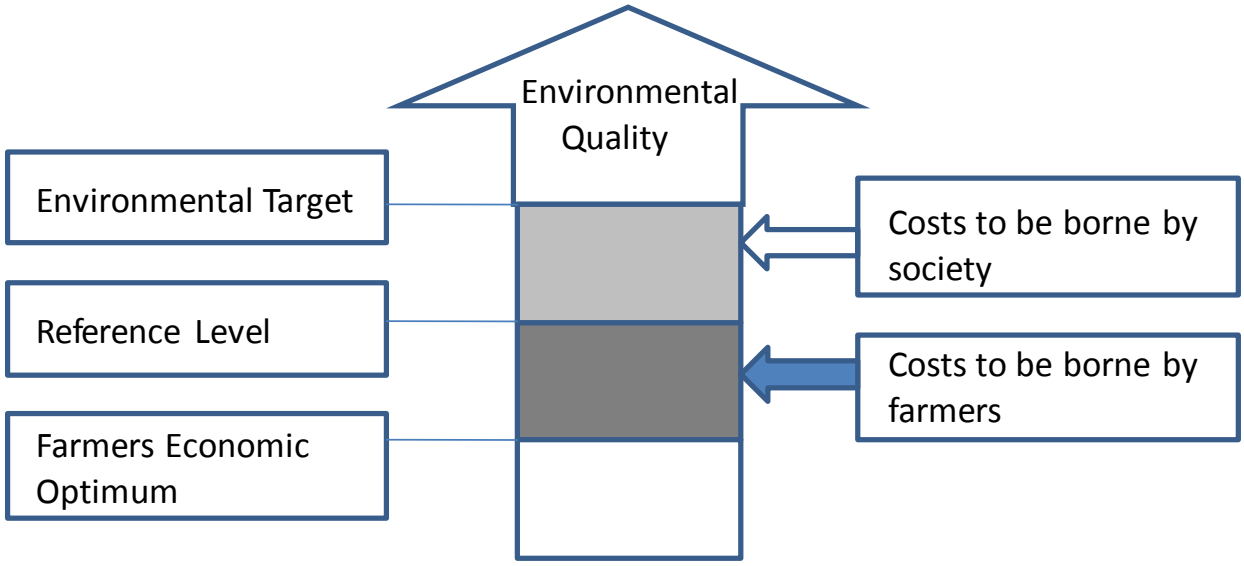
- administrative and monitoring costs if cross compliance conditions take heterogeneous compliance costs into account.

Chapter 2

Links between environmental regulations, agri-environmental payments and cross compliance

This section describes a *conceptual* framework illustrating the relationship between three of the main instruments used to address environmental issues in agriculture: environmental regulations, agri-environmental payments and cross compliance (it does not include taxes on inputs such as pesticides and fertilisers, for example). It draws on the analysis in *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches* (OECD, 2001), in particular the concept of "environmental targets" and "reference levels". Further material, based on the 2001 publication, is given in Annex 2, while Figure 2.1 shows, in a schematic way, the relationships between environmental targets, reference levels and farmers' economic optimum (the level of environmental quality farmers would provide on the basis of private profitability consideration).

Figure 2.1. Environmental targets, reference levels and farmers' economic optimum



Environmental targets depend on society's preferences for environmental quality – what society considers acceptable environmental practices or environmental performance. *Environmental reference levels* depend on a country's traditions and laws in defining property rights – who should pay for the costs of reducing environmental damage and who should be paid for the provision of environmental benefits. The definitions of environmental targets and reference levels vary between countries and through time, but

have crucial implications for the policy measures put in place, and the actual assessment of environmental performance. The setting of environmental targets is based on ecological or human health considerations, with some balance struck between the expected benefits to the environment and the additional costs of achieving those benefits. The issue of identifying the relevant environmental reference levels (who should bear the costs of reallocating resources to meet environmental targets) is based on distribution (equity) considerations and property rights. The following paragraphs illustrate the various options on the basis of the target and reference level concepts.

Environmental targets can be *either* defined in terms of minimum (mandatory) levels of environmental quality for the agricultural sector in a country (which requires *environmental regulations* and enforcement mechanisms in order to ensure that farmers meet the target) *and/or* desired (voluntary) levels of environmental quality that go beyond the minimum requirements. If the reference level (the level of environmental quality determined by regulations that must be achieved at the farmers' expense) is set at the target level (society's preferences for the environmental quality it requires), and current farm practices deliver environmental quality *below* those levels then farmers should be required to achieve the level of environmental quality at their own expense. This means that the farmer is obliged to reach that level (the "polluter pays" and is in *compliance* with the regulation), but is fined or otherwise penalised for non-compliance. An example would be a maximum level of nutrients or pesticides running-off from farms into water courses (target level) which farmers are required to respect at their own expense. In practice, the non-point source character of such water pollution makes this difficult to enforce in some cases, but technological monitoring devices are becoming available.

However, if the society sets the reference level below the environmental quality target level and current farm practices also deliver a level of environmental quality below the target level then one way to incentivise farmers to achieve the target level is to make a payment. This situation can refer to both the target defined in terms of a maximum amount of pollution or in terms of delivering environmental services beyond what is normally expected from farmers. An example of the former would be where farmers are subsidised to invest in animal manure storage facilities to enable them to comply with environmental legislation. An example of the latter would be payments for practices deemed to deliver biodiversity or carbon sequestration benefits (or the actual delivery of such benefits).

Chapter 3

Cross-compliance approaches in OECD countries

How does *cross compliance* fit into this conceptual framework? In all countries farmers are required to respect certain environmental regulations, whether or not cross compliance approaches are used. In the countries where cross compliance approaches are used, in the European Union (EU), a link is established between agricultural support payments and the respect of environmental regulations and standards aiming at ensuring the "good agricultural and environmental condition"(GAEC) of agricultural land and landscape conservation, such that support payments can be reduced or withdrawn for non-respect of these rules. In this case, due to the introduction of GAEC, the *reference level* of environmental quality for *cross compliance* is higher than defined by the environmental regulations. In the case of the United States and Switzerland the *reference level* of environmental quality is the same level as defined by environmental regulations, and all farmers are obliged to ensure that farm practices conform to the regulation, but for *cross compliance* agricultural support payments are conditional on meeting specific environmental practice or performance objectives that go beyond the regulations. In all countries, where farmers *voluntarily* enter into a contract with the government to provide environmental quality beyond what is required (the reference level) and for which no market return exists (public good), then they would be entitled to a compensation or incentive a payment as long as they complied with specified criteria. Country case studies for Switzerland and the United States are provided in Annex 1.

In the United States, cross compliance approaches were first introduced as part of the *1985 Food Security Act*, subsequently amended by the *Farm Acts* of 1990 and 1996. It has been used principally in an effort to control soil erosion by: i) encouraging farmers to adopt appropriate management practices for vulnerable (highly erodible) cropland; ii) providing disincentives for converting highly erodible soils that were not cropped before 1985 to arable; and iii) discouraging farmers from converting wetlands into arable lands.

The evidence shows that current US compliance programmes apply to less than 100% of farms. In the US, in 2004, 60% of farms (representing 40% of total production value) did not receive any Federal, agriculture-related payments - which form the basis for environmental cross compliance programmes. The 40% of US farms that did receive payments, however, include 85% of all cropland, 83% of highly erodible cropland, and 75% of all agricultural land (including all cropland and grassland used for agricultural production). This means that a non-negligible share of highly erodible land is not covered by environmental compliance conditions. Moreover, a large share of payments goes to farmers who have little or no HEL, while many farms with a large acreage of HEL receive relatively modest support. Many farms also include highly erodible land (in non-crop use) and wetland that could, if converted to crop production, trigger sodbuster or swampbuster sanctions, respectively

In the US, farm-specific information is taken into account in framing compliance conditions. For example, individual farmers on highly erodible land propose a conservation plan detailing what practices they intend to use in order to reduce soil erosion below a minimum threshold. Thus, the target is specified in terms of performance, and producers have flexibility in deciding (subject to USDA approval) which practices are the most suitable for achieving it on their own land. The USDA has approved over 1 600 "unique conservation systems for use, indicating that farmers are taking advantage of the built-in flexibility".

In the European Union cross compliance became compulsory with the 2003 CAP reform and extended from January 2007 to eight measures under "axis 2" of the 2005 regulation for rural development. It entails compliance with 19 Statutory Management Requirements (SMRs), based on pre-existing EU directives and regulations – five of which are specifically environmental, as well as with a new requirement consisting of a total of 11 standards relating to the protection of soils and the maintenance of habitats. The latter environmental standards are aimed at ensuring the "good agricultural and environmental condition" (GAEC) of agricultural land and landscape conservation. Farmers' obligations to ensure GAEC are often based on or adapted from previously existing standards of "good farming practice". The introduction of SMRs under cross compliance does not create new legal obligations but farmers must meet standardized documentation requirements since the legislation in question and its enforcement rules existed independently for some time previously and cross compliance requirements apply without prejudice to the independent system of penalties established by the specific environmental legislation.

A key feature of the EU approach is that it establishes a link between two policy instruments – agricultural income support payments (as well as a number of payments under rural development applicable for the period 2007-13) and statutory management requirements applicable at the farm level that are derived from EU environmental legislation. These relate to environment, animal and plant health, public health and animal welfare and identification and registration of animals. In the case of the European Union, non-compliance by farmers with standards related to: the environment; GAEC; animal identification and welfare; and public, animal and plant health; may lead to reduction or withdrawal of their agricultural support and rural development payments. The EU approach to cross compliance thus includes partial or full loss of agricultural income support payments if the farmer fails to comply with mandatory standards stemming from existing legislation and GAEC. The EU uses a system in which statutory requirements and voluntary provision are complementary. Farmers receiving agri-environment payments for voluntary commitments must in any case respect the mandatory standards. In that sense, the European Union cross compliance system already provides the baseline for calculation of payments for agri-environmental measures. EU Member States and Regional Authorities define the cross compliance standards on the basis of the EU framework adapting them to local conditions in order to deal with heterogeneity at local level based on farmers meeting standardized documentation requirements. Primary legal enforcement of environmental legislation is done through European Union Member States' sanctioning systems.

Moreover, even the GAEC standards are, in many cases, not new as many member states have defined most of the GAECs on the basis of requirements which were already applied, such as compliance with "good farming practices" as a base condition for receiving certain support measures under the rural development policy. GAECs were new only to those farmers who had not, as beneficiaries of rural development

agri-environmental measures or less-favoured area payments, previously applied "good farming practices". The member states have to define minimum requirements for all standards on the basis of the framework set up in Annex IV of Council Regulation (EC) No 1782/2003, except for those that are not relevant to the national context. The EU regulation on cross compliance leaves many details of design and implementation to the discretion of individual EU member states and its regions. Nonetheless, member states are required to establish an inspection and enforcement system, with reduction or withdrawal of agricultural income support payments for those farmers who do not comply with the GAEC and SMR standards.

In Switzerland, cross compliance requirements were introduced in 1999 as part of the Agricultural Policy Reform Programme for 1999-2003. Almost all forms of agricultural support are subject to environmental requirements. The requirements go beyond compliance with the country's existing environmental legislation concerning agriculture, as well as various structural, social and general criteria, as a lever to achieve economic and environmental sustainability. Direct income payments subject to environmental cross compliance are available on all agricultural land, regardless of how it is used. There are, however, exclusion conditions in terms of size (hectares or number of animals) and further criteria relating to age, minimum labour use, asset ceiling and so on. Less than 1% of farms are too large to be eligible for direct income payments, but they represent nearly 3% of agricultural land. However, about 90% of Swiss farms qualify for these payments. This suggests that some farms are excluded by eligibility criteria other than size. If so – and whether or not these exclusions are neutral with respect to environmental targeting – they reduce the coverage of the programme. This case illustrates how the eligibility rules, which are decided according to the primary objective of income support, can leave some farms untouched by environmental cross compliance requirements.

The Swiss cross compliance approach entails respect for environmental legislation and animal welfare requirements, as well as compliance with several supplementary environmental requirements, such as: at least 7% of farmland must be used as "ecological compensation areas"; an appropriate nutrient balance must be maintained; crops must be regularly rotated and the soil protected; and appropriate animal welfare measures must be adopted. In Switzerland, non-compliance by farmers with standards related to the environment and animal welfare may lead to reduction or withdrawal of their agricultural support.

In Norway, payments under the Acreage and Cultural Landscape Programme are granted on the condition that farmers meet the "cultural landscape" requirements which were introduced in 1991. In Korea, area payments for paddy fields have also been subject to ECC since 2001. In the EU, Switzerland and the United States, most forms of agricultural budgetary support and rural development payments are subject to cross compliance requirements, while in Norway this is the case for only one agricultural support programme. In the EU, Switzerland and the United States, farmers are required to respect the cross compliance obligations on the whole farm holding in order to receive payments for agri-environmental purposes. Table 3.1 summarises key characteristics of environmental cross compliance provisions in the EU, Switzerland and the United States.

Table 3.1. Characteristics of cross compliance approaches in the EU, Switzerland and the United States

	European Union	Switzerland	United States
Scope	Environmentally sustainable farming practices relating to water pollution, soil quality and soil erosion, and protection of biodiversity and landscape features and avoiding abandonment of land (of the 19 cross-compliance regulations, 4 concern animal identification, 4 concern public, animal and plant health, 3 concern the notification of animal diseases, and 3 concern animal welfare. In addition there are 11 standards for GAEC)	Environmentally sustainable use of land for farming, biodiversity and animal welfare	Soil erosion, wetland preservation (habitat)
Specificity	Whole farm	Whole farm	Whole farm
Coverage	Whole area of holdings of beneficiaries of agricultural direct payments and 8 rural development measures It is estimated that 97% of agricultural land in the EU-25 is covered.	97% of utilised agricultural land	Highly erodible land and wetlands for farmers participating in farm support and other agricultural programmes.
Relationship with regulations	Cross compliance conditions require farmers to comply with existing statutory requirements, maintaining land in good agricultural and environmental condition (GAEC) and the obligatory maintenance of the land under permanent pasture	Cross compliance conditions go beyond what is required from all farmers by common statue	Cross compliance conditions go beyond what is required from all farmers by common statue
Relationship with agri-environmental payments	Cross compliance conditions set the "baseline" (reference level) for agri-environmental payments, which must also respect these standards	Cross compliance conditions set the "baseline" (reference level) for agri-environmental payments	Cross compliance conditions set the "baseline" (reference level) for agri-environmental payments
Who decides the reference level?	Public authorities	Public authorities	Public authorities
Flexibility	5 EU-wide environmental directives are transposed into national legislation (actions are set in 6th Environmental Action Programme) plus 11 GAEC standards with scope for national or regional variations	National programme	Individual contracts for farmers under conservation compliance and sodbuster

Budgetary support with cross compliance	Agricultural direct payments (SFP, SAPS, area payments and livestock premia and eight measures of the rural development programme 2007-13 (less favoured area scheme, agri-environmental payments, etc.) on the whole farm	General direct payments, payments for oilseed cultivation, investment credits and concessionary aid	Most federal commodity support programme payments (marketing loan gains, disaster payments, counter-cyclical payments, loan deficiency payment, etc.) and conservation payments on the whole farm
Control	A risk-based assessment determines where eligible farmers should be spot-checked. Each year a minimum of 1% of farms are controlled for all 19 legislative acts and the 11 GAEC standards	All farms receiving the respective payments for the first time; all farms where insufficiencies were discovered in the previous years' control; and at least 30% of the remaining farms to be selected at random	Combination of random and non-random checks of tracts on those farms receiving support payments subject to HEL or wetland provisions. About 5% of land subject to compliance is reviewed each year
Penalties	Reduction in payments proportional to the severity, extent, permanence and repetition of infringement, with possibility of complete withdrawal of payments.	Reduction in payments proportionally to the extent of the infringement and the damage caused	Non-compliance can result in loss of many programme benefits, on all fields operated
Monitoring the functioning of the scheme and the environmental impact	There is a legal requirement to monitor whether environmental cross compliance conditions are in place and being met and as part of the evaluation of the CAP, there will be an evaluation of the functioning of the ECC approach at least every 6 years and every two years there is an evaluation from the European Court of Auditors.	Yes	Yes

Source: OECD.

ANNEX 1

Country case studies: the design and implementation of cross compliance

1. SWITZERLAND

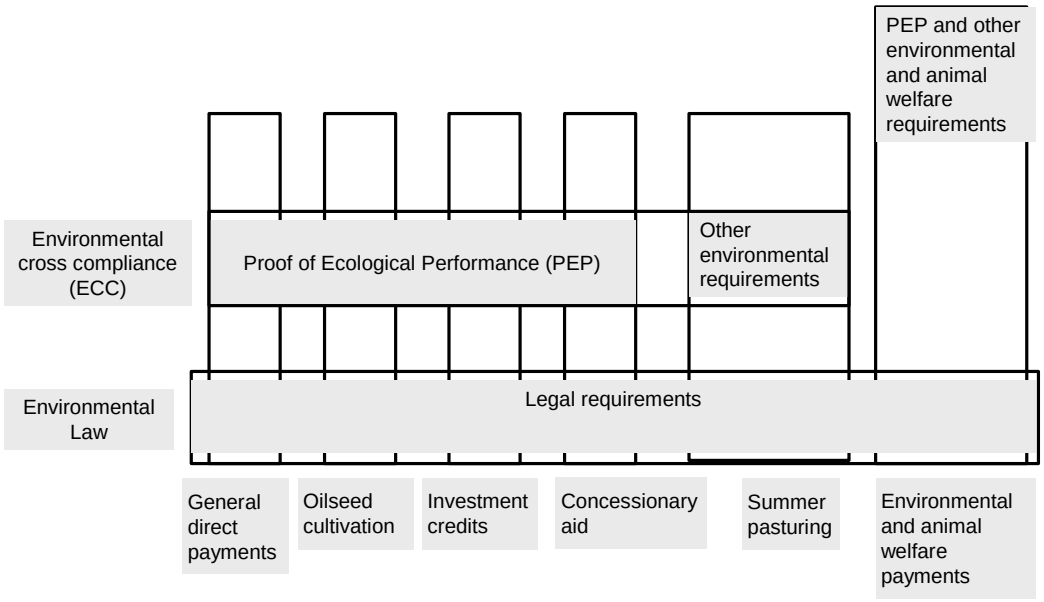
1.1. Development and objectives

In Switzerland, all forms of support payments are subject to environmental requirements (Figure A.1.1). Eligibility for farm support payments depends on adherence to environmental legislation specific to agriculture as defined in the laws on water protection, pollution control, nature conservation and protection of rural landscape. If a farmer contravenes these laws, he/she is not only fined, but direct payments made to him/her can also be withheld.

Cross-compliance requirements were introduced in 1999 as part of the Agricultural Policy Reform Programme 1999-2003 (AP 2002). Besides adherence to environmental legislation relevant to agriculture and the numerous structural, social and general criteria, farmers must also comply with specific environmental standards and farm-management practice requirements in order to qualify for most forms of farm support payments. In particular, eligibility for general direct payments; area payments for oilseeds; investment aid and concessionary credits, depends on farmers meeting the criteria for the proof of ecological performance (PEP) by demonstrating that they: maintain an appropriate nutrient balance; use at least 7% of their farmland as ecological compensation areas; regularly rotate crops and soil protection; make limited and targeted use of pesticides; and adopt appropriate animal welfare measures. Furthermore, as of 2007, eligibility for the receipt of direct payments will also depend on proof of basic professional training in agriculture. In addition, payments for summer pasturing will be subject to specific environmental requirements.

The main objective of environmental cross-compliance requirements is to ensure that the land is used for sustainable farming. Environmental management systems are intended to protect natural biodiversity, reduce nitrate pollution in soils and spring water, reduce phosphorus pollution in surface water and promote animal welfare. Environmental cross compliance contributes to the enforcement of existing standards as its requirements can be regarded as a baseline standard below which payments will not be made.

Figure A.1.1. Classification of support payments to farmers according to environmental requirements



It should be noted that the definition of ECC adopted in the main part of this document is broader than that used in Switzerland, as the latter includes only the payments which are subject to PEP requirements (*i.e.* payments for summer pasture are excluded).

1.2. Support programmes subject to cross compliance

In 2005, approximately 69% of budgetary support to farmers, or 33% of total support to farmers, was subject to cross compliance (Table A.1.1). All general direct payments, payments for summer pasturing, investment credits and concessionary aid, are subject to environmental cross compliance. General direct payments cover area payments, payments for roughage-consuming livestock units, payments for roughage-consuming livestock under difficult conditions and payments for wine cultivation on steep slopes (BLW, 2001). Agri-environmental payments, the eligibility requirements for which are stricter than those for cross compliance, account for 12% of budgetary support to farmers, or 6% of total support to farmers.

Table A.1.1. Support payments to farmers according to cross compliance (CHF mill)

	1999	2000	2001	2002	2003	2004	2005
Payments subject to cross compliance (1)	**1940**	**2019**	**2152**	**2236**	**2242**	**2245**	**2286**
General direct payments	*1779*	*1804*	*1929*	*1995*	*1999*	*1994*	*2049*
Area payments	1163	1187	1304	1316	1318	1318	1375
Holding roughage-consuming animals	255	259	268	283	288	286	289
Holding livestock under difficult conditions	256	252	250	290	287	284	280
Farming on steep slopes	96	97	97	96	96	95	94
Wine cultivation on steep slopes	9	10	10	10	11	11	11
Other payments	*161*	*216*	*223*	*241*	*243*	*251*	*238*
Oilseed cultivation	3	27	27	32	35	38	36
Investment credits	72	76	81	84	87	91	94
Concessionary aid	18	31	34	35	30	31	17
Summer pasturing	68	81	81	90	91	91	91
Agri-environmental payments	**242**	**263**	**331**	**354**	**370**	**390**	**397**
Ecological compensation	101	108	118	122	125	134	135
Extensive cultivation	35	34	33	32	31	31	31
Organic farming	12	12	23	25	27	28	29
Animal welfare measures	94	108	155	171	183	191	196
Water protection	0	1	2	4	4	6	6
Budgetary payments to farmers (2)	**2872**	**3016**	**3185**	**3283**	**3282**	**3276**	**3329**
Producer Support Estimate (3)	**7519**	**7615**	**7303**	**7699**	**7249**	**7267**	**7002**
Share (1)/(2) (%)	68	67	68	68	68	69	69
Share (1)/(3) (%)	26	27	29	29	31	31	33

Source: OECD PSE database.

Area payments

The area payment per hectare of agricultural land, introduced in 1999, is granted independent of any requirement to produce particular crops. The payments are subject to an income and asset ceiling and are differentiated by farm size (Table A.1.2.). In principle, payments are not differentiated according to land use or regions. For areas traditionally farmed in zones bordering foreign countries (*e.g.* France, Germany) payments are reduced by 25%, as these farms face lower input prices (*e.g.* seeds and fertilisers). Overall, 5 128 hectares are cultivated in the bordering zone since 1984.

Table A.1.2. Differentiation of direct payments by farm size

Area (ha)	Number of animals (RGVE)	Payment eligibility (%)
1-30	1-45	100
>30-60	>45-90	75
>60-90	>90-135	50
>90	>135	0

RGVE = roughage-consuming livestock unit.
Source : BLW, 2005.

In 2005, area payments accounted for around 66% of the total general direct payments. Almost 8% of the utilized agricultural area (UAA) is affected by the gradual reduction in payments. The average area payment is CHF 1 152 per hectare. Around 10.8% of UAA is managed by farms with surface areas of up to 10 hectares. Only 0.8% of farms have exceeded 60 hectares and covered 3.7% of the UAA.

Holding of roughage-consuming animals

These payments aim at protecting land by using it as grassland. They replace the payments made to 1998 to dairy farmers who did not place their milk on the market. Payments are made for animals kept on the farm during winter feeding. Cattle, horses, sheep, goats, bison, deer, lamas and alpacas are classed as roughage-consuming livestock. The payments are made for durable green spaces and temporary pastures: the different animal categories are converted into roughage-consuming livestock units (RGVE).

Farmers qualify for these payments if they keep at least one RGVE on their farm and satisfy the basic minimum requirements according to the direct payment regulation. Payments are differentiated by zones. Upper limits of support in each zone are based on the maximum numbers of animals (the water protection guidelines) and also take into consideration decreasing yield potentials.

The RGVE is divided into two contribution groups: CHF 900 per RGVE for cattle, horses, bison, milk goats and milk sheep; and CHF 400 per RGVE for the remaining goats and sheep, deer, lamas and alpacas. The payment per RGVE for animals that are more labour- and building-intensive is higher than for animals requiring lower expenditure.

Holding of livestock under difficult conditions

Farmers in the hill and mountain regions receive hillside payments and payments for animal husbandry when production conditions are difficult. The payments take into account the adverse farming conditions in these regions. Farmers are entitled to these payments if they cultivate at least one hectare of UAA in hill or mountain regions and also keep at least one RGVE. These payments apply to the same animals as those covered by the payments for the husbandry of roughage-consuming livestock. This measure

favours smaller farms, as payments are only accorded for a maximum of 20 RGVE per farm. Payment rates vary between zones (plain, hill and mountain regions).

The share of RGVE without payments corresponded to 36.8% of the livestock of farms entitled to payments. Farms affected by the payment limiting the number of RGVE to 15 kept about 82% of the RGVE-stock. The proportion of RGVE receiving no payments was 44.7% for these farms.

Farming on steep slopes

Payments for farming on steep slopes (*i.e.* general hillside payments) compensate farmers for difficult cultivation conditions. They are only paid for meadows, litter meadows and arable land. The meadows and litter meadows must be mowed at least once a year. Hedges, bushes and undergrowth, pastures and wine-growing areas are excluded from this scheme.

Farmers fulfiling the basic conditions and minimum requirements of the direct payment regulation are entitled to hillside payments, provided that the total sloping area on their farm in the hill or mountain region covers at least 0.50 hectares and 0.05 hectares per plot of land. The hillside situations are divided into two gradient levels (*i.e.* a gradient of 18 to 35% and gradient over 35%). The payment rates, which are per-hectare, increase with the difficulty of farming conditions. The registered areas show little change from year to year and depend on the climatic conditions that influence the amount of land utilised (increase or decrease of pastures or hay meadows).

Wine cultivation on steep slopes

The payments for areas of wine cultivation on steep slopes aim at preserving vineyards in steep and terraced locations. In order to meet the conditions of the eligible areas of wine cultivation, steep and particularly steep locations and terraces on retaining walls are differentiated when assessing the payments. A gradient of at least 30% is a prerequisite for receiving payments for areas of wine cultivation in steep and terraced locations.

Terraced locations are defined as wine-growing areas (gradient of at least 30%) that are regularly stepped with retaining walls and fulfil the following conditions:

- Minimum terracing, *i.e.* a distance between retaining walls of a maximum of 30 metres;
- Size of terraced location: a minimum of one hectare;
- Height of retaining walls: at least 1 metre (ordinary concrete walls are not eligible).

Farmers fulfiling the basic conditions and minimum requirements of the direct payment regulation are entitled to contributions for wine-cultivating areas, provided that the total sloping area on their farm covers at least 0.10 hectares and 0.02 hectares per plot of land. Payment rates are independent from zones, but are differentiated by hillside situations (*i.e.* a gradient of 30 to 50%, a gradient over 50% and areas in terraced locations).

The proportion of wine-growing areas in steep and terraced locations of the entire wine-growing area amounts to approximately 33%, and the share of wine-cultivating farms in the total number of all wine-cultivating farms to 60%.

Oilseed cultivation

The programme, which was launched in 1999, provides per-hectare payments for oilseeds (rapeseed, soybeans, sunflower and hemp). Farmers fulfiling the basic conditions and minimum requirements of the direct payment regulation are entitled to CHF 1 500 per hectare, provided that the area of the different seed crops represents at least 20 ares per parcel.

Investment credits

These payments are granted in the form of interest-concession loans by the federal government and the cantons. In addition to compliance with PEP requirements, farmers applying for investment credits are required to undertake professional training in farm management.

In 2004, the cantons approved investment credits for 2 159 projects, amounting to CHF 301 million, of which 86% was allocated to measures for individual farms and 9% for collective measures (BLW, 2005). The credits for individual farms were used primarily as start-up support for new buildings, and for the reconstruction or improvement of agricultural residential buildings, farm and alpine buildings. Collective measures were mainly used for soil improvement and building-related activities (alpine buildings, collective stables, building and equipment for processing and storage of agricultural products).

Concessionary aid for farm operations

Support under this programme, which takes the form of interest-free loans, is used to assist farmers who incur financial difficulties due to problems beyond their control. In 2005, a total amount of CHF 16.6 million was allocated to 120 farmers. The average loan is around CHF 138 264 and the re-payment period 13.9 year.

Summer pasturing

This programme aims at ensuring sustainable cultivation of extensive alpine summer pasture, pre-alp regions and the Jura region. Over 300 000 animals are kept on the summering areas, covering approximately 600 000 hectares. Farmers keeping livestock on a summer pasture, pasture or communal pasture are entitled to these payments. Although farmers do not have to comply with the PEP, they are required to respect certain environmental requirements.

Since 2000, payments are paid per standard pasture (NST) or livestock unit (LU).[1] Payment rates are differentiated by sheep, except milking sheep, and other roughage-consuming livestock. In 2005, the payment rate for milking cows, goats and sheep (56-100 days of summering) was CHF 300 per LU; for sheep, excluding milking sheep, the rates varied from CHF 300 per NST for shepherd-watched, CHF 220 per NST for rotating pasture and CHF 120 per NST for other pasture; and for other roughage-consuming livestock CHF 220 per NST. In 2005, CHF 92 million was granted under this programme, benefiting 7 387 farmers.

1.3. Standards and requirements

As mentioned earlier, farmers must fulfil three principal conditions for receiving general direct payments, investment credits and concessionary aid to farm operations:

General type of requirements

Only those farm managers who run a private farm and are resident in Switzerland are entitled to receive direct payments. Farms owned by the state, the cantons, the boroughs or legal entities receive no direct payments. In addition, farms which breach the regulations stipulating the highest permissible number of livestock units do not receive any direct payments.

Structural and social requirements

Structural requirements cover the criteria: size of farm, the minimum labour requirement, on-farm workforce (*i.e.* at least 0.3 standard labour units); and age of the farm manager. In addition, general direct payments are limited according to the size of the farm and the number of animals, as well as income and assets.

Proof of ecological performance

Criteria for the PEP include: measures to ensure minimum nutrient loss, annual crop rotation to maintain soil fertility, compliance with crop-specific soil protection indices to prevent erosion, restricted use of plant protection products; and an appropriate share in ecological compensation areas (Hofer, 2000). Violation or infringement of certain criteria of the relevant requirements may lead to a reduction or even a refusal of the payment.

To meet the PEP farmers must comply with six sets of rules (BLW, 2004; Hofer, 2000):

- Animal-friendly keeping of livestock

These rules require farmers to prove their compliance with the provisions of the regulation on animal protection. The farmers must demonstrate that they abide by the relevant legislation.

1. One NST is equivalent to the summering of one LU for 100 days. For summering farms with shorter summering periods the payment for milking animals is based on LUs. The cantons can adjust the standard stock density in the event of changes in farming conditions or environmental damage.

- Balanced use of nutrients

The nutrient balance rules prescribe that the amount of nitrogen and phosphorus used must be calculated according to the needs of the plants grown and the potential level of production. The use of fertilisers has to be balanced, but surplus inputs of up to 10% are tolerated. Soil analyses have to be carried out at least every ten years for each plot of land in order to determine the nutrient reserves in the soil and adjust the applications of fertiliser needed to maintain soil fertility. Plots using no added fertiliser, such as extensive grassland meadows, are excluded.

- Adequate share of ecological compensation areas

This rule requires that all farmers have 7% of the remaining utilised agricultural area laid out as ecological compensation areas and at least 3.5% covered by special crops (*i.e.* berries, fruit trees, outdoor vegetables, wine, *etc.*). Farmers can choose between 15 different habitat types (*e.g.* extensive meadows and pastures, and crop strips free of fertilisers and pesticides). The rules prescribe that strips of land of at least 0.5 metre in width must be left along paths and at least 3 metre-wide along rivers, hedges and forest uncultivated.

- Regular crop rotation

In order to avoid monoculture, and to maintain the fertility of the soil and good quality of plants, an annual crop rotation plan must be devised which includes at least four different crops. There are rules for the maximum proportion of the main crops (*e.g.* 66% cereals, 40% maize and 25% potatoes). On farms with more than 3 hectares of open land, the main crops must occupy the majority of land under rotation; pauses between crops may also be stipulated.

- Appropriate soil protection

This rule defines soil protection indices for each crop. In order to reduce soil erosion and the loss of nutrients or reduction of plant health products, farms with more than 3 hectares of open land are required to achieve a certain average level of plant cover for a specified number of days per year.

- Targeted selection of pesticides

This requirement prescribes that equipment for plant protection has to be tested at least every four years and that plants should be treated according to the threshold of tolerance. In addition, certain types of applications are prohibited.

Requirements concerning summer pasturing payments

In contrast to the general direct payments, the structural, social and general requirements, such as minimum labour requirements, the age limit of the farm manager, income and wealth are not applicable. However, farmers keeping livestock on a summer pasture, pasture and communal pasture must respect the following environmental requirements:

- Livestock kept on summer pasture must be held on enclosed pastures or be controlled once per week.

- Land which cannot be made over to pasture must be made inaccessible to animals.
- Land that is of aesthetic value must be maintained in accordance with the regulations in force.
- It is prohibited to spread fertilisers containing nitrogenous minerals and liquid fertilisers, apart from those originating in the mountain pasture.
- Herbicides may only be used to treat individual plants. Treatment of whole areas is only permissible in the context of a general land-clearing project.
- The use of coarse fodder originating from the mountain pasture is only permitted in situations resulting from exceptional adverse weather conditions.
- The feeding of concentrated fodder to pigs is authorised only as a complement to milk by-products produced on the mountain pasture.
- Buildings, installations and accesses must be correctly maintained.
- The basis on which a future exploitation is to operate must be outlined at the planning stage and strictly adhered to.

1.4. Monitoring, control and sanctions

Only those farmers who comply with the PEP requirements can receive direct payments. Farmers must show that they provide the required environmental services throughout their farm activities by presenting a certificate delivered by one of the inspection bodies used by the canton. If farmers fail to comply, area payments are reduced according to the cantonal regulations. To obtain the certificate, applicants must maintain up-to-date records of the management of their farm.

According to the direct payments regulation, the responsibility of control of the direct payment system, including PEP inspection, has been delegated to the cantonal authorities which may carry out the control themselves or use the services of external organisations accredited for the purpose. These organisations are randomly tested. Criteria according to which the cantons or consulted organisations must control the farms are also specified. Farms subject to control are (BLW, 2001):

- all farms receiving the respective payments for the first time;
- all farms where insufficiencies were discovered in the previous year's control;
- at least 30% of the remaining farms to be selected at random.

Farmers who supply false data or who do not meet some (or any) of the requirements for the benefits they receive are penalized on the basis of uniform criteria.

In the case of summer pasturing, farmers who fail to comply with the requirements are penalised as follows: payments are reduced by 25% when the number of animals exceeds by 10% to 15% the standard stock density, but at least two standard pastures; no payment is made when the number of animals exceeds the maximum standard stock

density by more than 15%, but at least three standard pastures; and when the number of animals equals more than 25% less than the standard stock density, the payments are calculated according to the actual stock density.

1.5. Coverage and compliance rates

A main feature of the AP 2000 was the coupling of direct payments to the fulfilment of PEP conditions. (One of the other goals of the AP 2000 policy reform was that 95% of all agricultural land should fulfil the ecological minimum requirement; this target increases to 98% with the AP 2007 policy reform programme, which provides the basic legislative framework governing agricultural policy for the 2004-07 period.) In 2004, 89% of all farms (or 97% of UAA) fulfiled cross-compliance requirements (*i.e.* PEP requirements) (Table A.1.3 and Table A.1.4).

As a result of the system, the share of area qualifying for other direct payments subject to cross compliance is lower than that for area payments since, given the objectives foreseen under the programmes, neither every type of animal nor the entire agricultural area is eligible to receive payments. Overall, *cross-compliance* measures exhibit constant participation at a high level, while *compliance* measures are generally characterised by lower, but slowly rising, participation. After a certain time, participation in compliance measures stabilises at a steady level, as it is not beneficial for those farms which already participate to commit more land or animals to the programme, as the lower opportunity cost opportunities are exhausted .

Table A.1.3. Area and livestock participation under different support measures, 1999-2005 (%)

	Unit	1999	2000	2001	2002	2003	2004	2005
Cross compliance								
Area payments	Hectare	95	96	96	96	96	97	97
Holding roughage-consuming animals	Livestock unit	22	23	24	25	26	27	27
Farming on steep slopes	Livestock unit	22	22	22	22	22	21	21
Summer pasturing	Livestock unit	23	24	24	22	24	25	24
Agri-environmental payments								
Ecological compensation	Hectare	10	10	11	11	11	11	11
Extensive cultivation	Hectare	8	8	8	7	7	7	7
Organic farming	Hectare	7	8	9	10	10	11	11
Regularly keeping animals outdoors	Livestock unit	41	48	53	57	62	64	66
Animal welfare through housing systems	Livestock unit	17	20	24	26	30	33	32

Source: BLW, various issues.

In 2004, the cantons (or authorized bodies) inspected 33 697 farms (59% of the farms eligible for general direct payments) in order to verify compliance with the RES (Table A.1.4). A total of 1 896 (6% of the farms inspected) offences of the requirements were found, leading to payment reductions amounting to CHF 981 000, or CHF 1606 per farm. Offences concerned mainly incorrectly maintained records and non-compliance with animal-friendly practices (Table A.1.5).

Table A.1.4. Farms participation, offences and payment reductions, 1999-2005 (%)

	1999	2000	2001	2002	2003	2004	2005
Total number of farms	73591	70537	68784	67421	65866	64466	63627
Cross compliance (1)							
Number of farms eligible for payments	68929	59790	67195	65377	65047	64526	63717
Participation (%)	94	85	98	97	99	100	100
Number of farms controlled (%)	42	66	56	59	68	59	52
Offences (%)	10	16	12	14	6	6	7
Payment reductions (CHF thous.)	6750	3485	4495	7076	4031	1758	4130
Agri-environmental payments (2)							
Number of farms eligible for payments	56437	56395	56105	55015	54564	54101	53403
Participation (%)	77	80	82	82	83	84	84
Number of farms controlled (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Offences (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Payment reductions (CHF thous.)	186	279	383	303	585	723	672

Notes: 1. PEP and summer pasturing requirements;
2. Ecological Compensation Areas (ECA).
Source: BLW, various issues.

Table A.1.5. Offences by type, 2005

	Total	(%)
Late announcement	70	2
Animal-friendly keeping livestock	896	20
Registration	1764	39
Balanced nutrient	343	8
Adequate share of ecological compensation	176	4
Buffer strips	263	6
Crop rotation	106	2
Appropriate soil protection	63	1
Selection and targeted use of chemical products	246	5
Others	598	13
Total	4525	100

Source: BLW, 2006.

2. UNITED STATES[2]

2.1. Development, objectives and coverage

The United States was the first OECD member country to introduce cross-compliance measures. Measures linking support schemes to erosion control have existed since the 1930s, although cross-compliance mechanisms were introduced with the enactment of the *1985 Food Security Act* (FSA).[3] In 1985, cross-compliance provisions were introduced through the *1985 FSA* and subsequently amended by the *Farm Acts* of 1990 and 1996. The 2002 *Farm Security and Rural Investment Act* (FSRI) and the 2008 *Food, Conservation and Energy Act* (FCEA) retained compliance mechanisms with only minor technical revisions.

Cross-compliance mechanisms are part of a broader strategy for soil conservation and wetland protection. In general, cross-compliance mechanisms require farmers to meet some minimum standard of environmental protection on environmentally sensitive land as a condition for eligibility for most agricultural payments. Such mechanisms have been used principally in an effort to control soil erosion by *encouraging farmers to adopt appropriate management practices for vulnerable arable land; by reducing the* incentives for converting grassland on highly erodible soils to arable; and by discouraging farmers from converting wetlands into arable land. The compliance requirement applies to some 44 million hectares of highly erodible land (HEL), about 25% of all US cropland and 31 million hectares of wetlands.

2.2. Support programmes subject to cross compliance

Producers who fail to meet cross-compliance requirements may be denied most federal commodity support programme payments, including: direct payments; marketing loan gains; loan deficiency payments; counter-cyclical payments; storage facility loans; and disaster payments on the whole farm, even if it includes non-HEL cropland. Production flexibility contract payments and market loss assistance payments were also subject to compliance requirements but are no longer authorised.

Conservation payments are also subject to compliance, and CRP, EQIP and other environmental payments can be suspended if compliance requirements are not met on any land anywhere on the farm. That is, payments can be suspended even if the violation occurs on field other than the one the environmental payment is targeting and the conservation activity the payment is for is fully implemented). Moreover, farmers cannot receive conservation payments for conservation practices that are needed to meet cross-compliance requirements.

U.S. compliance requirements generally fit into a portfolio of agri-environmental policy mechanisms that also includes regulation and incentive payments. In general,

2. Based primarily on Claassen, *et al*. (2004).

3. In 1977, a cross-compliance strategy was introduced to improve the operation of the Acreage Reduction Program (ARP) as a supply control measure for wheat, feed grains, cotton and rice, and had no environmental objectives. Participants claiming a payment for one of these commodities had to comply with set-aside provisions relating to other commodities for which they had base acreage, even if they were not claiming payments under other programmes that year.

regulation is reserved for the most serious environmental issues and implicitly forms a basic environmental threshold that all producers must meet. At present, regulations generally cover the use and availability of pesticides; manure-handling and its disposal at large, confined animal-feeding operations (CAFOs), and (in some cases) wetland drainage. Cross-compliance requirements from another, somewhat higher threshold that producers must meet in order to receive almost any Federal, agriculture-related payment. Cross-compliance requires producers to conserve soil on highly erodible cropland and to refrain from draining wetlands. Producers who seek conservation payments (even if they do not receive any other form of support) must first meet compliance requirements throughout their farm without assistance from Federal agri-environmental programmes. Higher environmental performance is generally encouraged through incentive programmes such as EQIP, CSP, CRP, and WRP. For example, the "swampbuster" component of cross-compliance *protects* existing wetlands and the Wetlands Reserve Program provides incentives to *restore* wetlands that are currently being farmed. While cross-compliance applies to whole farms, incentive payments can apply to a single field or livestock facility. Finally, although agri-environmental incentive payments cannot be used to meet compliance requirements, they can be used, in some cases, to assist producers who are subject to regulatory requirements. For example, EQIP funds can be made available to CAFOs to help defray the cost of meeting regulatory requirements for manure-handling and disposal. Table A.1.6 summarises the relationship between US agricultural support payments and environmental performance.

Table A.1.6. Relationship between agricultural payments and environmental performance[1]

Increasing environmental performance =>	Higher environmental performance: Incentives	WRP, CRP, CREP	EQIP, CSP, CRP, etc.	EQIP, CSP, etc.	CRP, WHIP, GRP, etc.
	Threshold performance for agricultural payments: Cross-compliance	Swampbuster	HEL/Sodbuster	None[2]	None[2]
	Minimum performance: Regulation	Clean Water Act	None	Clean Water Act / EQIP[3]	None
Environ-mental service=>		Wetlands	Soil Erosion	Nutrients/ Water Quality	Wildlife Habitat enhancement

1. Payments may address more than one type.

2. While compliance requirements do not address services other than soil erosion and wetland protection, payments for addressing other services (e.g. nutrient runoff or enhancing wildlife habitat, are subject to compliance restrictions).

3. EQIP funds can be used to assist farmers in complying with environmental regulations addressing nutrient runoff from large confined animal operations.

In 2005, 79% of budgetary payments to farmers (63% of total support to farmers) was subject to cross-compliance requirements (Table A.1.7).[4] Payments based on current or historical area make up most of the payments to farmers subject to cross compliance, accounting for 38% of these payments in 1986-88 and 48% in 2005. This category of payments includes payments under the PFC, MLA, CCP, LDPs programmes and crop disaster payments. Eligibility for federal agriculture-related loans or loan guarantees such as price support loans and farm credit loans can also be suspended. Federally subsidised crop insurance, which could be withheld under the original compliance provisions enacted in 1985, was removed from the list of programmes subject to compliance in the *1996 FAIR Act* and since then has no longer been subject to compliance requirements.

With the *2002 FSRI Act*, cross-compliance requirements were extended to support payments to producers of soybeans, other oilseeds, and peanuts, and to price support loans to producers of peanuts, wool, mohair, honey, small chickpeas, lentils and dry peas.[5] Claassen, *et al.*, (2004) argue that programme expansion is expected to have only a small effect on the overall effectiveness of compliance mechanisms.

The spatial distribution of payments relative to the environmental problems addressed through cross-compliance mechanisms is a critical factor that determines the effectiveness of cross-compliance. The evidence suggests that although the overall level of commodity programme payments fluctuates over time, the geographic distribution of these payments has been stable from year to year because the distribution of payments depends largely on the geographic distribution of programme-eligible base acres, which depends, in turn, on historical plantings, not current crop acres. A comparison of 1998 commodity programme payments with the geographic distribution of HEL cropland shows that most HEL, particularly wind-erodible cropland, is located on farms that receive support payments (Claassen, *et al*., 2004).

2.3. Standards and requirements

In order to qualify for most producer support payments, farmers are required to engage in conservation activities. Cross-compliance provisions deal with two general conservation problems: HEL conservation and wetland conservation.

HEL provisions

On HEL that was cropped during 1981-85, cross compliance requires farmers to apply conservation systems designed to result in a substantial reduction in soil erosion. These provisions are widely known as *conservation compliance*. The objectives of the conservation-compliance provision are to maintain soil productivity by maintaining soil depth, and to reduce offsite damage due to sediment loads by, for example, reducing the amount of sediment delivered to water bodies. Land that has been defined as highly erodible (HEL) (*i.e.* land that, based on the soils in a particular field, meets or exceeds an erosion index (EI) of 8 or greater) due to either wind or water erosion is subject to the compliance requirement in return for continued eligibility to receive those United States Department of Agriculture (USDA) benefits stipulated in the compliance provisions.

4. It should be emphasised that payments made under the Watershed Protection and Flood Prevention Program, and the Cotton User Marketing payments are not included, as these payments are not granted to farmers.

5. Soybean and other oilseed producers were already eligible for price support loans.

On HEL with no cropping history during the period 1981-85, farmers and ranchers must use a conservation system that results in no substantial increase in soil erosion and where erosion does not exceed the *soil loss tolerance level* (T). The objective of these provisions, widely referred to as *sodbuster* provisions, is to deter farmers from bringing into crop production more HEL cropland that was previously under a permanent native vegetated cover, such as grasses or trees.

The above fixed erosion standards apply to conservation systems developed or revised after 3 July 1996. The erosion control standards for conservation plans developed before this date are being replaced as the current operators adopt new technology and new conservation systems, and as new operators take control of the land. The earlier conservation systems relied on implementation of conservation compliance through an approach that took into account both soil erosion and the cost of erosion reduction, and erosion standards applicable across the country varied. Between 1986 and 1987, the USDA's Natural Resources Conservation Service (NRCS) encouraged farmers and ranchers to reduce erosion to the soil tolerance level (T), without making crop production unprofitable, utilising those "basic" conservation plans designed to reduce erosion to T that had been developed prior to compliance legislation. However, in 1987, NRCS began implementing Alternative Conservation Systems (ACS), where reducing erosion to T was found to prohibit a farmer's or rancher's ability to comply with the provision due to the increased costs involved. Alternative conservation systems require the application of soil conservation practices that are technically and economically feasible in a given local area and which achieve "substantial" erosion reduction. Under the concept of alternative systems, producers were given much more flexibility in the level of erosion reduction, with many areas of the country where low residue crops were the mainstay, exhibiting erosion levels two to three times the tolerated level. However, due to lack of consistency across county, state and regional boundaries, changes to the erosion standards were made administratively by the USDA.

HEL is defined as land with an *erodibility index* (EI) of 8 or larger.[6] The soil loss tolerance is an estimate of the rate of soil erosion that can occur on a given soil type without causing significant long-term productivity loss. The EI captures both the propensity of a soil to erode and the potential for damage resulting from erosion. Actual soil erosion, however, reflects a complex interaction of climate, topography, soil characteristics, land use, and land management practices.

6. The Erosion Index (EI) is a function of the rainfall (R), erosivity (K), and slope and length (LS) factors in the Universal Soil Loss Equation (USLE), divided by the soil loss tolerance (T) factor value for land subject to water erosion; and the climate (C) and soil erosivitiy (I) factor values in the Wind Erosion Equation (WEQ), divided by the soil loss tolerance (T) factor for land subject to wind erosion.

Table A.1.7. Support payments to farmers subject to cross-compliance (USD mill.)

	2000	2001	2002	2003	2004	2005
Support to farmers subject to cross compliance [(1)] ***(1)***	***27830***	***22863***	***16203***	***13600***	***21301***	***26885***
Payments based on output	*8938*	*6306*	*795*	*721*	*4099*	*5788*
Loan deficiency payments	6233	5594	546	476	3713	4764
Marketing loan gain	709	608	185	130	302	1
Payments based on current or historical area planted	*12651*	*9840*	*8641*	*5990*	*9625*	*12951*
Crop disaster payments	2052	935	1369	8	0	2380
Counter-cyclical payments	0	0	1805	541	4224	5224
Fixed payments	0	0	1618	5267	5289	5235
Production Flexibility Contract	5067	4099	3674	0	0	0
Crop market loss assistance	5463	4640	0	0	0	0
Payments based on input use	*3623*	*3871*	*3366*	*3372*	*3352*	*3430*
Agricultural credit programme	233	233	233	233	233	233
Agri-environmental payments [(2)]	*2619*	*2848*	*3401*	*3516*	*4226*	*4716*
Conservation Reserve Program (CRP)	1531	1657	1785	1789	1799	1937
Environmental Quality Incentive Program (EQIP)	174	198	390	331	904	995
Wetland Reserve Program (WRP)	177	174	284	309	285	268
Emergency Conservation Program (ECP)	65	38	32	47	23	80
Conservation Security Program (CSP)	0	0	0	0	41	202
Budgetary support to farmers (2)	***35640***	***33616***	***25650***	***25658***	***30319***	***33948***
Producer Support Estimate (PSE) (3)	**53071**	**51780**	**40341**	**35929**	**42869**	**42669**
Share (1)/(2) (%)	78	68	63	53	70	79
Share (1)/(3) (%)	52	44	40	38	50	63

1. Excludes payments of the cotton user marketing programme which are allocated to consumer transfers.

2. Excludes certain agri-environmental payments which are allocated to general services.

Source: OECD PSE database.

A conservation system is comprised of a combination of individual conservation practices. For example, a producer may adopt conservation tillage, shift to less erosive crops and install grass waterways to move water from fields. The planned and the applied conservation systems are adapted to variations in climate, topography, soils, major crops, and pre-existing production practices. The effectiveness of a system in controlling erosion depends on several factors, including: the frequency, timing, or severity of wind and precipitation; the exposure of land to weather; the ability of exposed soil to withstand erosive forces; the plant material available to shelter soils; and the propensity of production practices to reduce or extenuate erosive forces.

As conservation systems were developed on a site-by-site basis they were tailored to climate, soils, cropping patterns and the producer's management skills. This has led to a

broad array of approved conservation systems. For example, USDA data show that in 1997, 1 674 different conservation systems were approved, indicating considerable flexibility in conservation requirements. However, more than 50% of HEL with conservation systems was attributable to less than three conservation practices: conservation cropping, conservation tillage; and crop residue use - or a combination of the three (Table A.1.8). Although targeting to local conditions is probably more effective in reducing soil erosion than using plans less adapted to local conditions, monitoring and enforcement of cross-compliance requirements is more complex and transaction costs could be higher.

Table A.1.8. The most widely-used conservation systems on HEL cropland subject to compliance

Item	% of cultivated HEL
Conservation management systems	
Conservation cropping/crop residue use	27.5
Conservation cropping/conservation tillage	10.8
Conservation cropping only	7.8
Crop residue use only	4.9
Total	51.0
Conservation technical practices	
Total with conservation cropping	81.1
Total with crop residue use	51.3
Total with conservation tillage	33.0

Percentages sum to more than 100 because some conservation systems require the application of more than one practice.

Source: USDA, ERS, compiled from NRCS 1997 Compliance Status Review data as reported in Claassen, *et al.* (2004).

Wetland provisions

Under the wetland conservation provisions, widely known as *swampbuster* provisions, farmers can be denied support payments if they convert wetlands to agricultural production. These provisions are designed to stem wetland loss in agriculture and to protect wetland values such as wildlife habitat, water purification, groundwater recharge and mitigation of flood peaks. However, the *1996 Federal Agriculture Improvement and Reform Act (*FAIR) introduced some flexibility into the system, and producers can be exempted from the *swampbuster* provisions under the following circumstances:

- wetland conversion will have a minimal effect on overall wetland functions and values;
- the wetland conversion project is fully mitigated through the creation or restoration of similar wetlands in the same general area;
- the action is permitted under the Clean Water Act and if the NRCS determines that mitigation requirements are adequate; or
- a wetland is inadvertently altered in ignorance of the law and the wetland is restored within one year.

2.4. Compliance rates

Notwithstanding deficiencies in the data, rates of compliance are considered to be very high. In the first 6 years of the sodbuster provision, 1 185 cases of non-compliance were recorded, resulting in a loss of USD 6.4 million of programme benefits. Claassen, *et al.* (2004) suggest that many farmers are in compliance even though support payments per hectare of HEL cropland are modest for some farms. This might be attributable to the fact that flexible standards helped to keep costs low and, in addition, the most widely adopted practices in cross-compliance systems are inexpensive (e.g. conservation cropping, conservation tillage and seasonal crop residue management).

2.5. Monitoring, control and sanctions

The annual Compliance Status Review (CSR) is USDA's primary enforcement mechanism of HEL and wetland provisions. Each year, through the CSR, USDA field staff assesses HEL and wetland compliance on a sample of tracts on those farms receiving support payments subject to HEL or wetland provisions. Some tracts are selected at random from the USDA's Farm Service Agency (FSA) database while others are added by state FSA offices because of their potential non-compliance.[7]

In 2001, a total of 17 723 tracts were reviewed, amounting to about 4.9 million acres. Of the total tracts, 13 552 were identified through random sampling of the national database, while 4 171 were added by States. The CSR summary prepared by USDA's NRCS shows that 98.0% of reviewed tracts and 98.9% of reviewed acres were meeting HEL compliance requirements.

A 2003 report by the General Accounting Office (GAO, 2003) identified a variety of deficiencies in the CSR and questioned the USDA's claim that 98% of the country's cropland tracts subject to the conservation provisions is in compliance (U.S. GAO, 2003). GAO criticised the CSR on a variety of issues, including the methods used to select the sample for review, consistency and clarity of guidance provided to local offices, data handling and analysis, failure to cite producers for significant deficiencies, and inadequate justification for waiver of penalties. For example, one issue raised by the GAO report is the inclusion in the CSR of many tracts that do not require a compliance plan. In the 2001 CSR, 33% of the tracts reviewed did not require conservation plans. Often, these tracts were permanent pasture or rangeland, yet they were recorded as being in compliance with HEL and wetland provisions. If these tracts are removed from the

7. For example, tracts on which temporary variances or waivers were previously granted must be checked to establish a return to full compliance.

CSR data, the overall compliance rate drops to 93%. The GAO study raises significant questions about the quality of CSR data for the purpose of assessing the effectiveness of conservation compliance. This uncertainty suggests the importance of improved evaluation of conservation compliance.

ANNEX 2

Environmental reference and target levels

(Based on Annex 5 in *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches*, OECD, 2001)

Environmental reference levels are defined as the minimum level of environmental quality that farmers are obliged to provide at their own expense. Reference levels may be set in terms of the environmental outcome (for example water quality), or the appropriate farming practices (for example, maintaining buffer zones along water courses) or emission levels (for example, the quantity of nutrient run-off from the farm into water courses) to achieve such outcome. Given the non-point source nature of many environmental impacts of agriculture they cannot always be defined in terms of emission levels. This is why the environmental performance of agriculture is often defined in terms of the best available technology or practice for generating a given level of environmental quality, rather than in terms of a desired emission level. The value of environmental quality is often difficult to establish, but it can sometimes be defined in physical terms (for example, quantity of nutrients, sediment or pathogens in a water course).

Environmental targets are defined as minimum (mandatory) levels of environmental quality for the agricultural sector in a country or desired (voluntary) levels of environmental quality that go beyond the minimum requirements. Environmental targets depend on society's preferences for environmental quality, while reference levels depend on the country's traditions or laws in defining property rights. The efficient setting of environmental targets has to balance the benefits of pursuing environmental objectives against any resulting welfare losses due to lower production or consumption of other goods and services. In other words, the overall welfare optimum is achieved by reflecting the environmental quality that can be achieved in the light of the prevailing technological conditions and societal preferences for all goods and services.

The setting of environmental targets is based on ecological or human health considerations, whereas the setting of environmental reference levels (who should bear the costs of reallocating resources to meet environmental targets) is based on distribution (equity) considerations and property rights. In contrast to the case of industry, the environmental effects of agriculture are in many cases closely related to land use for which traditional or "presumptive" property rights can be claimed. When traditional or "presumptive" property rights in land gain priority over societal claims for certain land-use-related environmental qualities (soil and water quality, and biodiversity) the pursuit of environmental objectives may infringe on such rights and may require compensation for the expropriation of such property rights. Thus, this expropriation implies a change from presumptive rights into effective rights defined by the reference level.

Good farming practices are usually site and farm system-specific. They depend on natural conditions, types of production systems, agricultural structures, and social preferences, perceptions and values. Therefore, good farming practices and the associated level of environmental performance is not a unique point on the scale of environmental quality. It can vary from country to country and region to region. For example, good farming practices in mountain areas would be different from that in lowland areas or countries differ in their attitudes towards poultry produced in batteries and those raised in the open.

The chart below illustrates four different cases (A to D) which may apply to farmers in a country. XT represents the level of environmental quality corresponding to environmental targets; XR represents reference levels; and XC represents current farming practices. All cases represent an identical environmental outcome and allocation of farm resources as the *environmental target* XT is the same. What differs among these cases is the distribution of costs associated with achieving the defined environmental target (*i.e.* who pays or who is charged), depending on the *environmental reference level* and current farm practices.

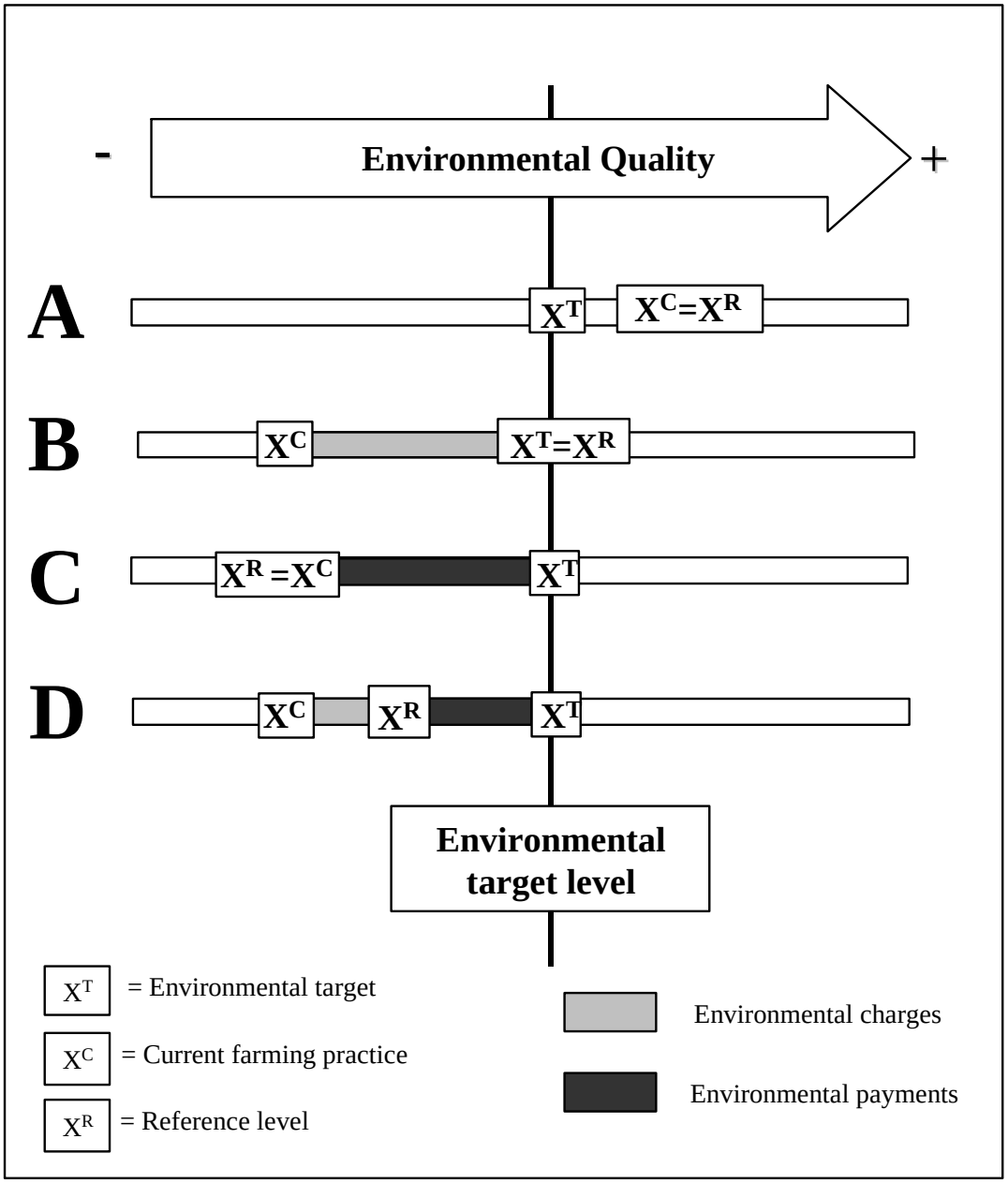
- ***Case A*** represents a situation where current farming practices provide a level of environmental quality corresponding to a reference level (XC=XR) *above* the environmental target (XT). Thus, farmers are already implementing farming practices required for achieving the socially desired environmental outcome. With XT and XR achieved at zero opportunity costs, *no policy action is needed*. In such case, the reference level XR would normally be achieved through current farming practices XC (often referred to as "good farming practices").

- ***Case B*** represents a situation where current farming practices (XC) provide an environmental performance *below* the reference level defined at the level of the environmental target (XT=XR). In this case, farmers need to adopt farming practices required to achieve the desired environmental target level (XT) at their own expense, which is consistent with the distribution of property rights.

- ***Case C*** represents a situation where current farming practices achieve an environmental performance corresponding to the reference level (XC=XR) that is *below* the target level (XT). As 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 (XC) to practices required to achieve the environmental target (XT). This is consistent with the polluter pays principle, which 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 XC to more restrictive ones at XT.

- ***Case D*** represents a situation similar to Case C where current farming practices (XC) provide an environmental performance *below* the environmental target level (XT), but with the reference level above the environmental performance level of current farming practices (XC) and below the environmental target (XT). To improve their environmental performance, farmers need to adopt appropriate farming practices at their own expense up to the reference level (XR). Requirements for farmers to further improve their environmental performance beyond XR (for example, to reach the environmental target XT) may need compensation, which might only be transitional.

Figure A.2.1. Environmental targets, reference levels and current farming practices



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