



Leveraging domestic offset projects for a climate-neutral world

Regulatory conditions and options



Editorial information

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Abstract

Voluntary domestic offset schemes offer great potential as instruments for advancing ambitious climate action and supporting the transformation towards low-carbon economies. At the same time, their possible scope of action in countries with reduction targets is limited: Mitigation commitments from the Kyoto Protocol, the EU ETS and national or subnational compliance mechanisms enhance the risk of different forms of double counting and demand guidance on additionality. Adding to these challenges, the regulatory framework will change by 2020.

This study carried out by adelphi on behalf of the German Emissions Trading Authority (DEHSt) at the German Environmental Agency (UBA) analyses the characteristics of initiatives in countries that generate carbon credits from domestic projects for being used mainly as voluntary offsets. It identifies respective challenges and opportunities and develops recommendations for improving regulatory conditions in order to advance the development of a domestic voluntary market and leverage its potential for a climate-neutral world. The recommendations include:

- ▶ No more niches: Regulatory framework needs to proactively safeguard environmental integrity. Where emissions reductions are counted towards national targets, governments could cancel Assigned Amount Units (AAUs) or commit to not selling excess AAUs. Transparent communication can alleviate concerns that double claiming can undermine perceived environmental integrity.
- ▶ Assess and endorse existing voluntary carbon standards: Official government endorsement (or by another central institution) of voluntary offset mechanisms could offer the opportunity to build on credible standards and use existing infrastructure instead of creating parallel structures that increase the risk of double counting. An endorsement could take the form of a positive list of recognized standards or provide certain benchmarks.
- ▶ Leverage the potential of the LULUCF / AFOLU sector: As the international community is aiming for a carbon-neutral world by the end of the century, carbon sinks will become more and more important. Most domestic offset initiatives are active in this sector, thereby providing significant experience in developing and implementing emission reduction and removal projects that the compliance market can learn from.
- ▶ Close the ambition gap with voluntary action: What seems to be a contradiction – using voluntary domestic offsets for compliance – may, in fact, help to get on track with ambitious climate targets. This can, for example, inform discussions on the Paris Agreement, in particular article 6.4.

Kurzbeschreibung

Der freiwillige inländische Markt für Treibhausgaskompensation bietet ein großes Potenzial als Instrument für ambitionierten Klimaschutz und den Übergang zur kohlenstoffarmen Wirtschaft. Zugleich schränken Mindeungsverpflichtungen aus dem Kyoto-Protokoll, dem EU-Emissionshandelssystem (EU ETS) und der nationalen oder subnationalen Ebene den Gestaltungsspielraum ein. Hinzu kommt, dass sich der regulative Rahmen ab 2020 ändert.

Diese Studie von adelphi im Auftrag der Deutschen Emissionshandelsstelle (DEHSt) im Umweltbundesamt (UBA) analysiert die Eigenschaften und Voraussetzungen von Initiativen in den Ländern, die Kohlenstoffzertifikate aus inländischen Projekten für freiwillige Kompensationen generiert haben. Ziel der Studie ist es, die Herausforderungen und Chancen für nationale Klimaschutzprojekte im freiwilligen Kompensationsmarkt zu beleuchten und Vorschläge zur Verbesserung der Rahmenbedingungen für die Entfaltung eines inländischen freiwilligen Kompensationsmarkts zu entwickeln – und damit der Vision einer klimaneutralen Welt näher zu kommen. Es lassen sich einige Empfehlungen ableiten:

- ▶ Keine Nischen mehr: Der Regulierungsrahmen kann Doppelzählung vermeiden helfen. Wo Emissionsreduktionen auf nationale Ziele angerechnet werden, können Staaten Assigned Amount Units (AAUs) löschen oder sich verpflichten, frei werdende AAUs nicht zu verkaufen. Eine transparente Kommunikation kann vermeiden, dass double claiming die wahrgenommene Umweltintegrität beeinträchtigt.

- ▶ Freiwillige Qualitätsstandards bewerten und empfehlen: Der Staat oder eine andere zentrale Stelle könnte freiwillige Qualitätsstandards prüfen und empfehlen. Damit könnte auf etablierten Standards aufgebaut werden und bereits existierende Infrastruktur genutzt werden, statt parallele Strukturen zu schaffen, die das Risiko von Doppelzählungen erhöhen. Dies könnte zum Beispiel durch eine Positivliste anerkannter Standards oder die Festlegung von Mindestanforderungen erfolgen.
- ▶ Potential des LULUCF- bzw. AFOLU-Sektors ausschöpfen: Da die internationale Gemeinschaft eine klimaneutrale Welt bis Ende des Jahrhunderts anstrebt, werden Kohlenstoffsinken eine immer größere Rolle spielen. Die meisten inländischen Kompensationsinitiativen sind in diesem Sektor aktiv und haben daher viel Erfahrung mit der Entwicklung und Umsetzung von Projekten zur Emissionsreduktion und in Senkenprojekten, von der der Verpflichtungsmarkt lernen könnte.
- ▶ Ambitionsücke mit freiwilligen Aktivitäten schließen: Was als Widerspruch erscheint – freiwillige inländische Kompensationen für Verpflichtungsziele zu nutzen – kann dazu beitragen, die ambitionierten Klimaziele zu erreichen. Das kann auch für die weiteren Verhandlungen zur Ausgestaltung des Pariser Abkommens von Interesse sein – insbesondere zu Artikel 6.4.

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List of Abbreviations

| | |
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| AAUs | Assigned Amount Units |
| ACCUs | Australian Carbon Credit Units |
| AEAs | Annual Emission Allocations |
| AFOLU | agriculture, forestry and other land use |
| CBDRRC | Common but Differentiated Responsibilities and Respective Capabilities |
| CCBS | Climate, Community and Biodiversity Standard |
| CDM | Clean Development Mechanism |
| CER | Certified Emission Reduction |
| CFI | Carbon Farming Initiative |
| CFS | CarbonFix Standard |
| CHA | Swiss Attestations |
| CHF | Swiss franc |
| CO₂eq | CO ₂ equivalent |
| COP | Conference of the Parties |
| CSR | corporate social responsibility |
| DEFRA | British Department for Environment, Food and Rural Affairs |
| DEHSt | German Emissions Trading Authority |
| DFP | Designated Focal Point |
| DOIC | Domestic Offsets Integrity Committee |
| DOPs | domestic offset projects |
| ERDF | European Regional Development Fund |
| ERF | Emissions Reduction Fund |
| ERUs | emission reduction units |
| ESD | Effort Sharing Decision |
| ESR | Effort Sharing Regulation |
| ETS | Emissions Trading Scheme |
| EU | European Union |
| EUA | European Union Allowances |
| EU ETS | European Union Emission Trading System |
| FCC | Forest Carbon Code |
| FES-CO₂ | Spanish Carbon Fund for a Sustainable Economy |
| FOEN | Swiss Federal Office for the Environment |
| FSC | Forest Stewardship Council |
| GHG | greenhouse gas |
| I4CE | Institute for Climate Economics |
| ICROA | International Carbon Reduction and Offset Alliance |
| IET | international emissions trading |
| INDCs | intended nationally determined contributions |
| IPCC | Intergovernmental Panel on Climate Change |
| ITMOs | internationally transferred mitigation outcomes |

| | |
|----------------|--|
| JI | Joint Implementation |
| JISC | Joint Implementation Supervisory Committee |
| KACCUS | Kyoto Australian Carbon Credit Units |
| KliK | Foundation for Climate Protection and CO ₂ Compensation |
| KP | Kyoto Protocol |
| LULUCF | land use, land use change and forestry |
| MAGRAMA | Spanish Ministry of Agriculture, Food and Environment |
| MEEM | French Environment Ministry |
| MRV | monitoring, reporting and verification |
| NDC | nationally determined contributions |
| NGO | non-governmental organization |
| NKI | National Climate Initiative |
| PA | Paris Agreement |
| PEFC | Programme for the Endorsement of Forest Certification |
| PIU | Pending Issuance Units |
| PRC | Peatland Rewetting and Conservation |
| REDD | United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation |
| RHC | Spanish Carbon Footprint Registry |
| ROE | recognised offsets entity |
| RMUs | removal units |
| SFOE | Swiss Federal Office of Energy |
| UBA | German Federal Environmental Agency |
| UK | United Kingdom |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VCS | Verified Carbon Standard |
| VER | Verified Emission Reduction |
| VOCAL | Voluntary Carbon Land Certification |
| WCC | Woodland Carbon Code |
| WCUs | Woodland Carbon Units |

Summary

Introduction

Voluntary domestic offset schemes offer great potential as instruments for advancing ambitious climate action and supporting the transformation towards low-carbon economies. At the same time, their possible scope of action in countries with reduction targets is limited by international, regional and national regulations on climate protection. Mitigation commitments from the Kyoto Protocol and under the Paris Agreement, the EU ETS and national or subnational compliance mechanisms enhance the risk of different forms of double counting and ask for guidance on what to define as additionality.

More countries have already successfully implemented initiatives for the development of domestic carbon offset projects. Currently, there is no common framework for accounting and certifying GHG mitigation activities in the voluntary market and for embedding it in the compliance market.

The study carried out by adelphi on behalf of the German Emissions Trading Authority (DEHSt) at the German Environmental Agency (UBA) seeks to analyse the characteristics of initiatives in countries that generate carbon credits from domestic projects for voluntary compensation. It aims at identifying the respective challenges and opportunities and to develop recommendations for improving these conditions in order to advance the development of a domestic voluntary market and leverage its potential for a climate-neutral world.

Setting the scene: main concepts

Domestic offset projects (DOPs)

DOPs are usually understood as instruments for countries with mitigation targets to stimulate domestic emission reduction or removal opportunities and technological innovation in sectors that are not used for compliance purposes. What initially started as voluntary bottom-up initiatives from project developers and NGOs is today increasingly seen as a private sector mechanism for governments to incentivize reductions from emission sources neglected by existing market mechanisms (Peters-Stanley 2012). In a DOP, project developers reduce or remove GHG emissions for which they receive (mostly) tradable credits. Once the reductions or removals are certified and verified by an independent quality standard or a domestic offset scheme they may be purchased by domestic entities wishing to offset their emissions.

While some definitions refer to domestic offsets as projects to “reduce emissions of CO₂ equivalent (CO₂ eq) in the non-ETS sectors and trade these as CO₂ credits on the ETS market” (Van Der Gaast et al. 2013), this paper explicitly understands these as schemes intended to contribute to greenhouse gas mitigation beyond compliance targets in the host country itself. Voluntary domestic offsetting, in particular, refers to carbon credits that are sold on the voluntary market of the host country and are not used for compliance purposes. This market is driven by a desire of companies or individuals to make voluntary commitments to reduce their environmental impact.

Barriers for DOPs

Domestic offset projects for the voluntary market are confronted with several challenges. In particular, the scope of action for domestic voluntary offset projects in countries with reduction targets is limited by the international, regional and national regulatory frameworks on climate protection. Mitigation commitments from the Kyoto Protocol, the EU ETS, the Effort Sharing Decision and national or subnational compliance mechanisms as well as other types of low-carbon policies demand a concept to address the risk of different forms of double counting. Furthermore, the additionality criteria need to be agreed upon by the respective stakeholders. Both additionality and the avoidance of double counting are intended to safeguard the environmental integrity of an offset and guarantee that projects generate emission reductions (or removals) over and above a country's international mitigation commitment.

Additionality: To achieve net zero GHG emissions, offsetting activities need to ensure that the reduction or removal of GHG is additional – which means that it would not have occurred in absence of the funded activity. Neglecting additionality can undermine the intended net zero and result in a net increase in emissions. Simply put, an additionality test asks the question whether a mitigation activity would not have been implemented in absence of the willingness to sell or purchase the resulting emission reduction or removal units.

Additionality tests not only guarantee buyers wishing to compensate their emissions that their investments are environmentally effective, but also ensures that voluntary action is not used to substitute activities that are mandatory under existing climate or energy policies. As additionality tests are based on counterfactual future projections and arguments, a certain degree of uncertainty will always remain. According to the standard of the voluntary market applied for a climate protection project, additionality is usually demonstrated with the help of one or several tests that assess barriers on different levels, including financial, legal, technological and other non-financial barriers. Due to this complexity, the UNFCCC has started to introduce the concept of “positive lists”. Here, the criteria for eligible project types are predefined and can be used by project developers in the form of simple “yes” and “no” questions.

Projects in the voluntary market are often small and only generate a limited number of carbon credits and thus revenues. Complex additionality tests may prevent project developers from realising their ideas and can limit opportunities. Not only the high costs and efforts, but also uncertainty related to the actual success of the tests pose substantial challenges and can exceed the capacities of small initiatives.

For these reasons, some voluntary offset schemes are shifting to performance standards, which evaluate the technologies or processes that generate emission reductions or removals instead of the individual project. Such performance criteria are shifting part of the administrative burden from project developers to the standard-setting entity. Performance standards can be benchmark approaches, establishing a baseline scenario against which all new project proposals are measured, or positive technology lists. The latter corresponds to the UNFCCC concept of ‘positive lists’, providing a list of all technologies, project types and processes that will be considered additional in certain project areas, making additionality testing a transparent and less costly process. The Climate Action Reserve, for example, uses a performance standard approach, while Gold Standard and VCS do not. It depends on the project type whether performance standards can be appropriate. Less contentious project types include as agricultural and landfill methane or industrial gases (CORE n.d.).

Double counting: Double counting refers to a scenario in which a specific GHG emission reduction or removal is inadvertently or intentionally claimed, sold, accounted or monetized twice (VCS 2012; Gold Standard 2015). Double counting is a risk specific to offsetting and emissions trading that can undermine the environmental integrity of emission reduction (or removal) units.

Double counting can take many different forms and can occur in different actor constellations both in a compliance and a voluntary market setting. Its implications with regard to the environmental integrity of an emission reduction (or removal) also vary depending on whether the reduction is used on the voluntary market or for compliance purposes. Four types of double counting can be distinguished: double selling, double issuance, double claiming and double monetisation.

Forms of double counting in the voluntary carbon market can be classified as follows: (1) Those that can be resolved more or less easily and (2) those that pose more serious difficulties and require more indepth analysis.

(1) Double selling and double issuance or accounting do not necessarily cause environmental integrity issues, as long as units are not double claimed (for compliance purposes). Moreover, both forms are related to accounting and registration issues that can – in theory – be easily resolved by introducing centralised registries with a full record of the transaction history. Therefore, these two forms of double counting have less relevance with regard to how they relate to the regulatory framework conditions that define the scope for voluntary domestic projects.

(2) Double claiming and double monetisation, if they emerge in scenarios that involve an entity engaged in voluntary offsetting and a national government of an Annex B country, are more problematic. Double claiming then occurs and can undermine perceived environmental integrity if it is not communicated transparently. Double monetisation, in contrast, causes a net increase in emissions and impairs environmental integrity. To safeguard the credibility of the voluntary carbon market, it needs to be avoided. The best solution towards preventing both double claiming and double monetisation would be the systematic cancellation of AAUs for each credit issued by a voluntary project.

Framework conditions for DOPs pre-2020

Kyoto Protocol and implications for double counting

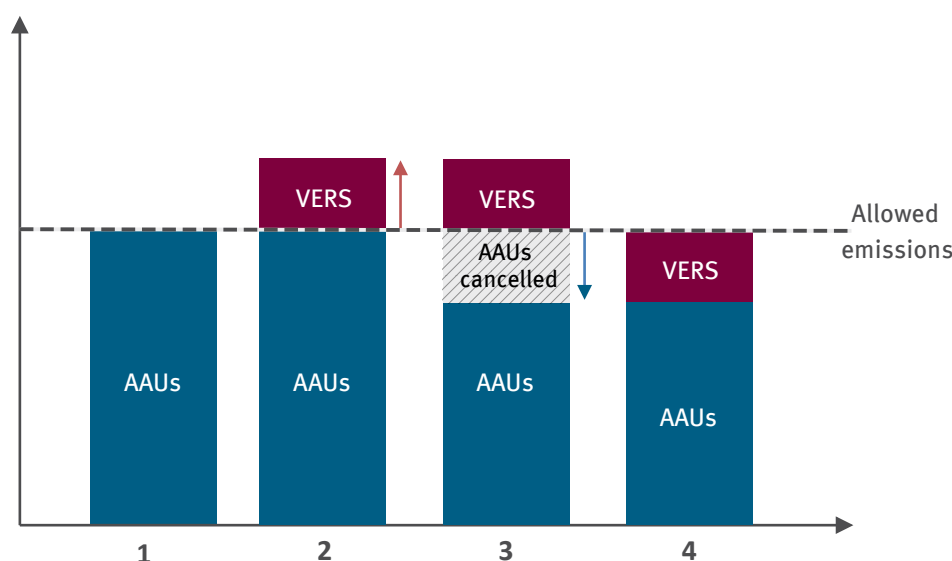


Figure 1: Cancellation of AAUs when issuing VERs

Countries with binding reduction targets under the Kyoto Protocol (Annex B countries) are assigned an emissions budget in the form of ‘assigned amount units’ (AAUs). The quantified reduction targets are primarily to be achieved with domestic action, constituting a “significant element of the effort” (UNFCCC CMP1 2006), including measures such as energy efficiency, market instruments, carbon or energy taxes, legal regulations, voluntary commitments or research and development (UNFCCC 2012). Domestic offset projects also fall within the scope of domestic action, as the carbon benefit stays within the host country. However, voluntary domestic projects are ineligible for compliance under the Kyoto Protocol.

Double claiming: Certificates generated through voluntary domestic projects usually affect the national inventory and AAU budget. Sectors that are not accounted for in the national inventory for Kyoto compliance are theoretically not at risk of double claiming, as they are not on the ‘radar’ of the state – however, with the exception of certain LULUCF activities, there are hardly any sectors left that are not yet covered by Kyoto. As a consequence, Annex B countries with voluntary domestic initiatives would need to make sure that for every issued voluntary certificate an AAU is cancelled in order to prevent the reduction/removal from being claimed twice.

Double monetisation: Voluntary projects in sectors covered by the Kyoto Protocol bear the risk of unintentionally ‘liberating’ AAUs and thus leading to double monetisation. Cancelling AAUs for each credit issued on the voluntary market (or committing not to sell surplus AAUs) would also counteract this risk of double monetisation. While double claiming only implies that a country counts the reduction against its national target, double monetisation means that surplus AAUs are sold and enable another country to increase its emissions – thereby increasing the global emissions ceiling instead of offsetting. The latter impairs environmental integrity, and the former can harm perceived environmental integrity if not communicated transparently.

AAU cancellation: To avoid both double claiming and double monetisation, AAU cancellation for projects in sectors counted towards Kyoto targets would be a good option for Annex B countries. In practice, however, Annex B countries refrained from cancelling AAUs for all VERs created so far.¹ One of the main problems is the lack of a comprehensive, universal understanding on how the voluntary market should function under the Paris Agreement. Governments need to provide clear guidance. Annex B countries can make sure that the voluntary credits for which they retire AAUs are additional and environmentally sound. As long as they do not and different standards with different levels of quality coexist, this substantially limits the scope of action for voluntary domestic projects, as most verification standards that are internationally acknowledged do not accept projects from Annex B countries that do not retire AAUs.

¹ With the sole exception of Bulgaria, that cancelled more than 60,000 AAUs in exchange for credits from the VCS-certified project “Katuntsi Small Hydro Power Project” (VCS 2015).

How voluntary standards deal with it: Most verification standards in the voluntary carbon markets suggest cancelling AAUs or avoiding projects in Annex B countries in the first place. The VCS and the Gold Standard, for example, require proof that AAUs have been cancelled from the national registry for a project to be eligible (VCS 2012).

The European framework

The European Union has set itself and committed to ambitious targets for the reduction of greenhouse gas emissions up to 2050. The overall targets of reducing emissions by 20 percent by 2020 and by 40 percent compared to 1990 by 2030 are to be achieved through a wide range of regulatory measures.

The two main areas of reduction activities are the EU emissions trading system and the Effort Sharing Decision (ESD).

EU ETS: The EU's emissions trading system (EU ETS), launched in 2005, is the key tool of EU climate policy and the largest emissions trading scheme worldwide. The scheme is currently in its third trading period, which runs from January 2013 to December 2020, with a cap representing GHG emission reductions of 21 percent compared to 2005 levels. Similar to the Kyoto Protocol, the EU ETS permits flexibility as to how emission reduction targets are achieved. As the Kyoto Protocol entered into force, the EU agreed to allow the use of Kyoto flexibility instruments for compliance under the scheme to a certain extent with the 2004 'Linking Directive' (2004/101/EC).

ESD: The overall goal of the ESD is a reduction of emissions from non-ETS sectors, which account for around 55 percent of all EU emissions, by 10 percent by 2020 (European Commission 2016; CDC Climat Research et al. 2015). Member States are allowed to use flexibility instruments to achieve their emission targets, including trading, banking or borrowing between states and over years. The principle of flexibility under the ESD aims at ensuring environmental integrity, effective compliance and addressing different capacities. The ESD includes the sectors transport, buildings, agriculture and waste, but, debatably, explicitly excludes LULUCF at present.

Implications for voluntary domestic projects: With regard to double counting, the challenges for voluntary domestic offsetting are similar to those of the Kyoto framework. One of the major difficulties for domestic offset projects within EU Member States is the fact that most low-cost abatement technologies and installations are among the ETS sectors and thus not eligible for voluntary domestic action (Hoozgaad and von Unger 2010). This means that many of the remaining options for domestic offsetting have high abatement costs that make them financially unattractive. However, the LULUCF sector offers great potential for lower cost GHG sequestration projects and is likely to play an increasing role, given that the potential for emission reductions in other sectors will decline.

The national framework: domestic offset projects in Germany

The German framework for DOPs is mostly determined by Germany's commitments under the Kyoto Protocol and the European climate and energy framework. These differ from other Annex B countries only with regard to the scope of LULUCF activities that are reported under the Kyoto framework. For the second commitment period, Germany decided to include the activities of grassland and cropland management in its GHG inventory, while rewetting and wetland drainage were not selected.

Little space for German DOPs: One of the few examples of a German DOP are MoorFutures, an initiative that offers emission reductions from peatland rewetting. Until 2013, peatland was not counted towards Kyoto targets in Germany's national greenhouse gas (GHG) inventory and did not cause any issues of double counting. However, as most German peatlands are within forests, cropland or grassland, around 85 percent of CO₂ emissions from peatlands in Germany are attributable to forestry and agricultural use (including grassland and cropland) under the Kyoto Protocol. This raises issues of double claiming that have not yet been resolved, as like most Annex B countries, Germany does not allow for cancelling AAUs in lieu of VERs.

German DOPs – differences between wishes and constraints: A 2015 market analysis by adelphi and sustainable on behalf of the Federal Environment Agency showed that almost 50 percent of buyers of carbon offsets in Germany for use in the voluntary market would prefer domestic certificates (Wolters et al. 2015).

However, this demand can currently not be met, as there are virtually no projects outside the accounting of the Kyoto Protocol that offer credits from DOPs for reasons of regulative uncertainty as well as high transaction and abatement costs. Harmonising supply and demand seems to offer great potential for the voluntary markets, but requires legislative changes to incentivise the development of DOPs.

Insights from selected voluntary domestic offset schemes

Several examples of domestic offset schemes in different countries exist that have found different ways in dealing with the challenges identified above.

Australia: Carbon Farming Initiative / Emissions Reduction Fund

The Carbon Farming Initiative (CFI) is a national voluntary offset scheme that was initiated by the Australian government in 2011. Since 2014, it is part of Australia's Emissions Reduction Fund (ERF), constituting a centrepiece of the Australian Government's emission reduction policy. CFI enables farmers to voluntarily engage in GHG emission reduction or removal activities to earn carbon credits which can be sold both on the voluntary and the compliance carbon market. Carbon credits under the CFI are known as "Australian Carbon Credit Units" (ACCUs). The CFI covers activities in the agriculture and land use sectors, as well as emission reductions from legacy landfill waste, which was complemented by activities in the sectors energy efficiency, transport and industrial fugitives under the ERF.

The CFI and now the ERF comprise both Kyoto and non-Kyoto activities, and enable project proponents to generate Kyoto ACCUs or non-Kyoto ACCUs. When the CFI was introduced, Australia had opted out of accounting for voluntary activities under Article 3.4 (forest land management, cropland management, grazing land management and/or revegetation). Projects in the domains of soil carbon, feral animal management, improved forest management and non-forest revegetation were eligible to earn non-Kyoto ACCUs that could only be sold on the voluntary market.

With the second Kyoto period, and the inclusion of additional mandatory activities under Article 3, Australia was obliged to count all forest management activities towards their target and voluntarily added cropland and grazing land management, leaving fewer activities eligible for non-Kyoto ACCUs. Activities added under the ERF, energy efficiency, transport and industrial fugitives, can only earn KACCUs. Between December 2012 and June 2016, more than 25 million ACCUs were issued through the CFI and the ERF. Of these, only approximately one million, or 4.3 percent, were non-Kyoto ACCUs.

As abatement from non-Kyoto ACCUs is not reflected in Australia's Kyoto accounts, at present, there is no risk of double claiming or double monetisation.

France: Voluntary Carbon Land Certification (VOCAL)

The project Voluntary Carbon Land Certification (VOCAL) aims to develop a methodological framework for validating carbon reduction/removal units in agricultural and forestry projects in France. The certification scheme is developed in close collaboration with the French government since the beginning of 2016: The environmental ministry (MEEM) participates in the stakeholder consultation process and is a member of the 'Club Carbone'. Furthermore, MEEM is committed to approving the certification framework a priori in 2017. It will then be in charge of validating the methodologies. As the framework development is done by a stakeholder group, government workload is reduced and the utilisation of maximum expertise can be ensured. At the same time, government endorsement or approval of the certification framework promises to improve trust and visibility of domestic offset projects, thereby potentially increasing market demand.

Activities covered by VOCAL will include afforestation/reforestation, improved forest management, emission reductions from field crops ("grandes cultures") and cattle farming. The project counts on a site in the Massif Central to pilot the methodologies in the forestry sector in cooperation with GIP Massif Central. The pilot projects not only aim at carbon sequestration but also at the generation of socioeconomic and landscape benefits.

Double counting provisions are still to be decided, but in general VOCAL aims to contribute to national and European greenhouse gas reduction targets. A transparency approach is likely to be adopted: As long as project and emission reduction/removal details are clear and transparent, involved stakeholders can communicate their voluntary contributions and there will be clear communication of the double claiming issue.

Italy: Codice Forestale del Carbonio

As Italy converts carbon stored by Italian forests, both public and private, into RMUs for potential use towards fulfilment of its emission reduction obligations under the Kyoto Protocol, forest owners have restricted access to carbon markets for concerns of double claiming. The initiative of the Italian “Codice Forestale del Carbonio” (FCC – Forest Carbon Code) has been developed to counter these challenges and it looks into innovative carbon sequestration activities outside the common definition of forest management practices applied for RMU generation. The FCC, first released in 2012, aims to stimulate a low carbon economy by facilitating public and private investment for the creation of new forests and the improvement of green systems in agricultural and urban environments in Italy. It supports the development of domestic forestry projects for use on the voluntary carbon market.

The FCC provides a handbook for developers of carbon sequestration projects and focuses on facilitating investments in forest and farmland management and fostering sustainable management of green areas to generate carbon credits for the voluntary market. Despite the importance of the forestry sector, many projects still work without guidelines, quality standards and external certification, or use their own standards, because certification costs seem too high for micro or small projects. While it does not offer formal certification of forestry projects, the FCC provides good practice guidance and touches upon major issues project developers should take into consideration to enhance quality standards and harmonise the process of carbon crediting throughout Italy.

For its reporting on forest management under Article 3.4 of the Kyoto Protocol, Italy applies a very broad definition of managed forests, regarding all forest in Italy as managed. In 2006, Italy was assigned a cap of 2.78 M t CO₂ eq/year of carbon sequestration that can be credited with RMUs. In 2009 alone, 94.7 M t of CO₂ were removed from the atmosphere with LULUCF activities, mostly forest land, grassland and cropland – a volume greatly exceeding the allowed cap. Thus, there is a large volume of carbon sequestration that must not be counted towards Italy’s Kyoto target and that could theoretically be partly used by a voluntary market. Therefore, while double monetization of FCC is theoretically possible, it does not occur in practice and does not represent a problem. The same holds true for double claiming, because the carbon sequestration of the forestry sector is far beyond the cap and so Italy cannot claim all its sequestration.

Spain: ‘Calculo, reduzco, compenso’ / ‘Fondo de Carbono para una Economía Sostenible (FES-CO₂)’

There are two major crediting schemes in Spain: (1) The Spanish “Fondo de Carbono para una Economía Sostenible (FES-CO₂)” is a voluntary scheme to promote private actions to reduce emissions in non-EU ETS sectors. The scheme is exclusively domestic and does not allow for credits to be traded outside of Spain. (2) The voluntary carbon footprint registry (Registro de huella de carbono, compensación y proyectos de absorción – RHC) that generates credits from voluntary projects in the forestry and land use sector. These credits can be purchased by companies wishing to voluntarily reduce their carbon footprint.

Participation in the FES-CO₂ scheme is voluntary for companies but projects are intended to contribute to the Spanish ESD target. So at the moment, units are not actually traded on the carbon market for compensation but used to reduce emissions within the non-ETS sectors and help the Spanish government achieve its reduction target. The project categories agriculture, housing, waste, industry, transport and fluorinated GHGs are counted towards the ESD target and are part of the commitments under the Kyoto Protocol. This means that double claiming can occur but as its use towards the reduction target is communicated transparently, it is not a challenge for environmental integrity. As long as AAUs are not sold to other Annex B countries, double monetisation does not occur.

Regarding RHC, project activities eligible under the voluntary registry, reforestation with land use change and restoration of existing forests, are mandatory reporting categories according to articles 3.3 (type A) and 3.4 (type B) of the Kyoto Protocol, and must therefore be listed in Spain’s national inventory and counted towards its Kyoto target. This puts projects theoretically at risk of double counting, at least on the international level. Regarding the European framework there is no problem with double counting until 2021. However, in practice this does not occur as removals exceed the cap of what can be counted towards Kyoto.

Switzerland: Domestic compliance scheme

In its CO₂ Act, Switzerland committed to reducing its GHG emissions by 20 percent to 40 million t CO₂ eq by the year 2020. Several instruments and policies have been implemented to achieve this target, including a Swiss ETS, a CO₂ levy on fossil fuels and a domestic offset scheme. Within the offset scheme, importers or producers of fossil motor fuels are legally obliged to offset 10 percent of all traffic-related emissions by 2020. Rates increase annually, starting with 2 percent in 2014 and aiming for an accumulated volume of 6.5 M t CO₂ eq between 2013 and 2020. Fuel importers may compensate either by purchasing credits from domestic Swiss projects or by implementing in-house carbon reduction projects.

The Swiss domestic offset scheme is different from other case studies examined in this paper in that it is not a voluntary mechanism, which has significant impacts on the way it relates to the current international framework. As the GHG emission reductions realised through domestic offset projects in Switzerland are counted towards the national climate target, the scheme faces less restrictions with regard to the sectors in which projects and programmes can be implemented. In theory, any sector that is eligible for compliance could also be suitable for the domestic offset scheme without risking double claiming or double monetisation – as long as credits are not sold outside Switzerland. Double monetisation is not a problem by design because the scheme is not voluntary. As credits are issued in and must stay in Switzerland, there is no risk of double claiming between Switzerland and another country. Environmental integrity is sound because there is only one party with compliance obligations claiming reductions, and communication about double claiming from the sides of both government and company is transparent and clear.

United Kingdom: Woodland Carbon Code (WCC)

Launched in 2011, the Woodland Carbon Code (WCC) is a voluntary standard that generates credits for national woodland creation within the United Kingdom. Since 2011, more than 200 projects with an overall volume of 15,841 hectares of woodland with a sequestration potential of 5.848 million t CO₂ eq over the next 100 years have been registered, 125 of which have already been validated.

Parts of the credits are issued ex ante as so-called “Pending Issuance Units” (PIUs), interim credits that stand for a promise to deliver future GHG removals but that cannot be claimed. Woodland Carbon Code units can only be counted against mitigation targets ‘ex post’, after verification of the carbon sequestration and a transformation of PIUs into Woodland Carbon Units (WCUs). Since 2014, PIUs are available for sale, and once converted into verified units, they will become available for use within the UK to offset for organisation’s emissions or to claim carbon neutrality of a product or an event.

The WCC activities fall under the category of “direct, human-induced, afforestation, reforestation and deforestation activities” and are thus listed in the UK’s national inventory in accordance with the Kyoto Protocol’s LULUCF regulations. As a result, removal units (RMUs) are credited to the national account for WCC projects in the UK and there is clear communication regarding the fact that WCUs contribute to the UK’s national reduction target. Double claiming does occur, whereas double monetisation is not possible, as the UK emission reduction target is more stringent than international commitment and the UK has committed to cancelling any excess AAUs. Furthermore, PIUs and WCUs are only available to domestic buyers.

Opportunities for DOPs in a post-2020 world

The Paris Agreement

In December 2015, the Paris Agreement was adopted and on 4th November 2016 came into effect after having being ratified by more than 55 Parties covering 55 % of global GHG emissions. In contrast to the Kyoto Protocol’s static annex framework, all parties are expected to contribute based on the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDRRC). The Paris Agreement thus greatly expands obligation coverage and successfully includes those Parties that did not ratify or withdrew from the Kyoto Protocol, including the world’s two largest emitters the USA and China. Through its INDC process the UNFCCC has established a framework for bottom-up pledges that need to be transformed into legally binding targets under a new mechanism of the Paris Agreement (nationally determined contributions – NDCs).

Although “markets” are nowhere explicitly mentioned, the Paris Agreement allows the “use of internationally transferred mitigation outcomes towards nationally determined contributions” under Article 6.2, setting the basis for a new market mechanism. As there will be no distinction between Annex I and non-Annex I countries, all Parties may buy and sell emission reduction certificates, or “internationally transferred mitigation outcomes” (ITMOs). ITMOs can essentially be derived from any kind of bilateral, regional or multilateral cooperation, for example in the field of carbon schemes, technology transfer, ETS or even climate finance (Prell 2015).

The Paris Agreement also makes arrangements for the establishment of a new mechanism that could succeed JI and CDM and has been dubbed “mechanism for mitigation and sustainable development”. This mechanism targets private and public entities alike and will be installed under the UNFCCC with supervision from a body designated by the Parties.

The Paris Agreement expects cooperation mechanisms to contribute to increased ambition of Parties in the implementation of NDCs. This might offer great potential for domestic offset schemes, as more ambitious targets are likely to increase demand for carbon credits. In particular, many major Parties including the European Union and the U.S. explicitly declared that they intend to meet their initial pledges without acquiring international offsets. This could open up new possibilities for domestic projects in meeting the additional mitigation need resulting from the PA. However, with the Paris Agreement’s ratchet mechanism, the use of international offsets to comply with more ambitious targets at a later stage cannot be excluded.

European framework: enhanced flexibilities under ESR

As reduction targets will be raised under the new ESR in 2021, DOPs could gain more importance on the European carbon market, as their potential of reducing a Member State’s quota is substantial. Moreover, the EU’s decision not to make use of international credits post 2020 also means that these credits can no longer be used as flexibilities under the EU ETS and the ESR. This will rule out CERs from CDM and ERUs from non-EU Member States, while credits equivalent to what are currently ERUs from within the European Union might still be eligible.

In addition, the proposal for the new Effort Sharing Regulation (2021-2030), released in July 2016, includes two new types of flexibilities. First, Member States may use a limited amount of allowances from the EU ETS to achieve their national target in the non-ETS sectors. And second, domestically generated reductions from the landuse sector (including afforested land, managed grassland and managed cropland) may be used for national targets up to a fixed countryspecific limit (European Commission 2016). Together with the rising targets for non-ETS sectors for the period of 2021 to 2030, this can unlock great potential for domestic projects. Mitigation potential from the LULUCF sector will prospectively play an increasingly important role. At the same time, this will require a robust framework.

Together with the new ESR, a proposal of the European Commission for the inclusion of GHG emissions and removals from LULUCF into the 2030 climate and energy framework was released. It proposes an accounting framework for LULUCF during the period from 2021 to 2030 with slight changes to the regulations under Decision 529/2013/EU (European Commission 2016). The new framework establishes a “no-debit rule”, according to which no Member State may have net emissions from LULUCF on its territory. The use of flexibilities, including the accumulation of net removals over the ten year period and the transfer of excess removals to other Member States, will be allowed. Together with the no-debit rule, this sets new incentives to increase GHG removals beyond the national commitment.

Recommendations

Voluntary carbon markets have always played an important role as playing fields, pioneering and improving mechanisms. This can be an important function of voluntary markets also with regard to the post-2020 framework. At the same time, the degree of regulation of the voluntary carbon market is still limited. A number of quality standards and voluntary schemes with different stringency coexist with varying perceptions of the issues related to environmental integrity, robust accounting frameworks and double counting. This regulative uncertainty is also reflected in the volume of voluntary credits internationally: In 2015, only 1.4 percent of the volume in the global carbon markets was attributable to the voluntary market (Ecosystem Marketplace 2016; Thomson Reuters 2016).

As we work towards more ambitious emission reduction targets, voluntary carbon markets can and should play a more important role in safeguarding the international pathway to limit global warming to below 2°C. Considering the substantial ambition gap under the Paris Agreement, with analysis indicating that pledges included in the INDCs are merely sufficient for a 3°C path (UNEP 2015), more efforts are needed from all parts of society and the private sector. However, with increasing coverage of mitigation activities included in international and regional compliance schemes, the scope for voluntary domestic projects needs to blend with the compliance market over time. Under current legislations and different regulatory domestic frameworks, virtually all voluntary projects will need to find solutions to issues of double claiming and double monetisation. In addition, in a world where almost all countries assume binding targets or commit to contribute to the Paris Agreement, as opposed to the two framework of the Kyoto Protocol, the voluntary domestic carbon market needs to redefine its role. If we want to promote and support voluntary initiatives for climate protection, national governments need to act soon to establish a credible and robust regulative framework that enables project developers to generate high-quality voluntary offsets that are environmentally sound.

The following recommendations can help to address these challenges:

No more niches: Regulative framework needs safeguards to avoid double counting

The launch of the EU ETS in 2005 and the beginning of the first Kyoto commitment period in 2008 marked an important change for voluntary carbon offsets, which were largely unregulated and offered creative leeway for climate policies by then. The introduction of binding emission reduction targets, although a starting point for various carbon markets, also introduced the issue of double counting for the voluntary market. Since then, the scope of activities that are not at risk of double claiming or double monetisation has been further decreased and will dwindle by 2020.

At present, voluntary carbon schemes can still develop niche approaches within sectors that are not entirely captured in the national inventory for compliance purposes. However, in Annex B countries such niches are restricted to those LULUCF activities not yet voluntarily selected under the Kyoto Protocol. For EU Member States, this gap will close at latest with the new Effort Sharing Regulation starting in 2021. Any state aiming at credible and environmentally sound emission reduction should therefore take measures to create space for voluntary projects to be implemented without emission reductions or removals risking to be counted twice.

Cancellation of AAUs: To do so, governments may consider cancelling AAUs, or the equivalent units in a post-2020 world, in lieu of voluntary carbon credits to reliably exclude double claiming and double monetisation and thus incentivizing voluntary engagement. At present, the main perceived barrier to cancelling AAUs is the concern of indirectly endorsing emission reductions that might not be environmentally sound. At the same time, reliable and internationally acknowledge quality standards such as the Gold Standard and VCS do not certify emission reductions or removals in Kyoto Protocol Annex B countries unless they permanently cancel AAUs. To break this cycle, governments could consider cancelling AAUs (or equivalent units of the respective scheme) for voluntary projects if they fulfil certain requirements. Instead of cancellation, a less bureaucratic way could be for a government to commit to not selling excess AAUs. Besides addressing double counting, these pathways would also guarantee that reductions or removals from voluntary projects are truly additional to national compliance activities, raising the ambition of the overall target and confirming the integrity of the system.

At least five EU Member States, Denmark, Germany, the Netherlands, Sweden and the United Kingdom, have decided to cancel their surplus AAUs and ERUs that resulted from overachieving the targets of the first Kyoto commitment period by 2012 (Government of Sweden 2015). A similar decision for the second commitment period (if it were ratified) would be an opportunity to enable project developers to issue VERs in exchange in order to incentivise private mitigation action without risking to claim or monetise reductions or removals twice.

Deducting voluntary reductions/removals from national inventories: Another, yet less straightforward, solution could be discounting the GHG reductions and removals from voluntary projects from the national inventory and not counting them towards the compliance target. While the result would be the same as with AAU cancellation, the implementation could be more challenging. Currently, national inventories do not, but could potentially distinguish between reductions or removals from voluntary and from compliance measures.

As a first step, a central registry for voluntary projects would therefore be required. If domestic projects were able to guarantee that emission reductions or removals are not accounted within the national inventory, they could even be eligible for certification under standards such as the Gold Standard – enabling the government to simply use the data from the corresponding Gold Standard registry for discounting voluntary emission reductions from the national inventory.

Assess and endorse existing voluntary carbon standards

While governments of European countries are still reluctant to recommend the use of existing voluntary carbon standards, examples of other countries show that there is an increasing recognition of voluntary standards also in compliance settings. For example, the VCS has recently been recognised by national governments as an offset mechanism for instruments such as the Californian cap-and-trade programme or the South African Carbon Tax Regulation (VCS 2016). This shows that voluntary standards are increasingly perceived as alternatives to the traditional compliance market standards in terms of rigour and delivering environmentally sound emission reductions. While official government endorsement (or by another central institution) of voluntary offset mechanisms requires a careful assessment, it could offer the opportunity to build on credible standards and use existing infrastructure instead of creating parallel structures that increase the risk of double counting. An endorsement could take the form of a positive list of recognized standards or provide certain benchmarks.

Even though it would require more detailed guidelines, this could also be a useful approach for methodologies: For example, additionality rules could be based on such benchmarks or positive lists – facilitating project development and thus allowing a scale-up of domestic offset projects. Additionality testing is often a very lengthy and costintensive procedure that significantly increases transaction costs for small project developers. At the same time, less complicated procedures may be at the expense of precision, so there is a trade-off between costs and rigour of additionality tests. To give project developers more security of investment, some initiatives like the Australian ERF and the Italian Forest Carbon Code have shifted from project- to activity-based additionality tests and have established positive lists that designate technologies and activities that are considered additional per se. Standardisation of additionality testing through positive lists or performance benchmarks significantly eases the requirements for project developers. At the same time, there may be a higher risk of nonadditional credits. Conservative benchmarks are therefore needed as well as more stringent testing for large-scale projects.

Leveraging the potential of the LULUCF / AFOLU sector

As the international community is aiming for a carbon-neutral world by the end of the century, carbon sinks will become more and more important. Since the potential for emission reductions in other sectors is not unlimited, in particular assuming that economic growth will continue, the carbon neutrality target can only be met with carbon sequestration or avoided emissions from the LULUCF or AFOLU sector. To fully tap the potential of carbon sinks domestically, private initiatives are needed: In Germany, for example, almost 50 percent of all forests are privately owned, mostly fragmented areas that belong to small businesses. ‘Tree planting’ or other LULUCF or AFOLU projects are still very popular amongst businesses that voluntarily offset parts of their GHG emissions for CSR or publicity reasons, as the benefit that they create is more visible and easier to communicate than emissions avoided through technological innovation. Moreover, most domestic offset initiatives are active in this sector, thereby providing significant experience in developing and implementing emission reduction and removal projects that the compliance market can learn from.

However, there are drawbacks and the sector is not very attractive for project developers for several reasons. First, it remains challenging to reliably calculate the sequestration potential of carbon sinks or the avoided emissions from peatlands and to establish adequate baselines. In addition, LULUCF credits should only be sold ex post, as they do not create carbon benefits right away and carry a high risk of non-permanence. This requires project developers to make high up-front investments with uncertainty regarding the actual return. To encourage private action in the AFOLU sector, governments should provide initial financial support to land and forest owners to develop projects that sequester carbon from the atmosphere or to reduce emissions from peatlands. The new land use flexibility that will become available under the ESR from 2021 onwards could be a good starting point to develop guidelines and standards for crediting of domestic AFOLU projects.

Closing the ambition gap with voluntary action

What seems to be a contradiction – using voluntary domestic offsets for compliance – may, in fact, be a feasible solution to get on track with an ambitious climate target. In order to close the ambition gap, more incentives are needed to encourage project developers to initiate activities that reduce or remove GHGs. Since much demand for sound emission reductions is likely to come from governments themselves, voluntary domestic schemes can offer alternatives to purchasing international credits. Apart from responding to the high demand for domestic credits on the voluntary market, using credits from DOPs for national compliance can be considered a fair contribution to the global climate target. The initiatives examined in Spain and Switzerland can provide useful leads for how to design implementation. Another starting point could be to adjust public purchase rules accordingly.

A scheme for voluntary domestic projects approved by a central national authority could further stimulate the use of DOP. Building on good practice in other countries, such a scheme could guarantee project developers the purchase of a fixed volume of credits, similar to the Australian model. At the same time, centrally-endorsed credits could be made available to interested actors via the voluntary carbon market. This would address multiple issues at the same time:

- ▶ **Enhancing investment security:** Guaranteed purchase of a fixed amount of units by the government, given the compliance of activities with predefined quality standards, enables project developers to plan ahead.
- ▶ **Encouraging innovative solutions:** As opportunities for further emission reductions in capped sectors will decline, the innovative, explorative potential of the private sector is urgently needed to stay on track with ambitious emission reduction targets.
- ▶ **Avoiding double claiming and double monetisation:** Bundling voluntary action under a domestic mechanism makes it easier to keep track of voluntary DOPs in order to take measures that avoid double claiming and double monetisation (e.g. cancellation of AAUs).
- ▶ **Safeguarding the integrity of reductions:** A domestic scheme gives governments full control of the quality requirements and rigor applied to domestic projects, making it easier to endorse the emission reductions or removals.
- ▶ **Addressing the supply problem:** Interest in domestic carbon offsets is high, but there is currently not enough supply. A government-approved domestic offset scheme that guarantees the avoidance of double claiming could level up the volume of domestically-generated carbon credits.
- ▶ **Creating local social, economic and environmental benefits:** Carbon offset projects can deliver multiple benefits above and beyond the carbon reduction, including health benefits, environmental conservation, investment in local economies, transfer of technology, or local infrastructure.

The graph below summarises and illustrates the main challenges (in yellow) and opportunities (in green) domestic offset schemes face under the current international mitigation framework and highlights the potential changes from 2020 onwards under the Paris Agreement (boxes in the middle apply to both). These provide the foundation for the report's recommendations (in red).



Figure 2: Opportunities and challenges pre and post 2020

Zusammenfassung

Einführung

Der freiwillige inländische Markt für Treibhausgaskompensation bietet ein großes Potenzial als Instrument für ambitionierten Klimaschutz und den Übergang zur kohlenstoffarmen Wirtschaft. Zugleich ist der Gestaltungsspielraum in Ländern mit Emissionsreduktionszielen eingeschränkt. Minderungsverpflichtungen aus dem Kyoto Protokoll, dem EU-Emissionshandelssystem (EU ETS) und der nationalen oder subnationalen Ebene erhöhen das Risiko unterschiedlicher Formen der Doppelzählung und verlangen nach einer Klärung der Zusätzlichkeitsanforderungen.

Viele Länder haben bereits erfolgreich Initiativen zur Entwicklung nationaler Minderungsprojekte gestartet. Ein einheitlicher Rahmen zur Erfassung und Zertifizierung der THG-Minderungsaktivitäten für den freiwilligen Markt und zur Einbettung in den Verpflichtungsmarkt existiert bislang jedoch nicht.

Diese Studie von adelphi im Auftrag der Deutschen Emissionshandelsstelle (DEHSt) im Umweltbundesamt (UBA) analysiert die Eigenschaften und Voraussetzungen von Initiativen in den Ländern, die Kohlenstoffzertifikate aus inländischen Projekten für freiwillige Kompensationen generiert haben. Ziel des Vorhabens ist es, die Herausforderungen und Chancen für nationale Klimaschutzprojekte im freiwilligen Kompensationsmarkt zu beleuchten und Vorschläge zur Verbesserung der Rahmenbedingungen für die Entfaltung eines inländischen freiwilligen Kompensationsmarkts zu entwickeln – und damit der Vision einer klimaneutralen Welt näher zu kommen.

Zentrale Konzepte

Inländische Kompensationsprojekte (Domestic Offset Projects, DOP)

Unter DOP verstehen wir Instrumente, mit deren Hilfe die Länder mit Minderungszielen darüber hinausgehende Anreize für freiwillige inländische Emissionsreduktionen oder Kohlenstoffsinken schaffen können. Während DOP ursprünglich als freiwillige Bottom-up-Ansätze von Projektentwicklern und Nichtregierungsorganisationen ins Leben gerufen wurden, werden sie heute vermehrt als Mechanismus betrachtet, der es auch Regierungen erlaubt, Emissionsreduktionsanreize im Privatsektor für jene Quellen zu schaffen, die mit existierenden Marktmechanismen nicht abgedeckt werden (Peters-Stanley 2012). In einem DOP reduzieren Projektentwickler Treibhausgasemissionen oder binden diese in Senken und erhalten dafür (größtenteils) handelbare Emissionszertifikate. Sobald Emissionsreduktionen bzw. deren Einbindung zertifiziert und durch einen unabhängigen Qualitätsstandard oder ein nationales Kompensationssystem verifiziert wurden, dürfen sie durch (zumeist) inländische Unternehmen oder Einrichtungen gekauft werden, die ihre Emissionen kompensieren wollen.

Barrieren für DOP

Inländische Kompensationsprojekte für den freiwilligen Markt sind mit einigen Herausforderungen konfrontiert. Minderungsverpflichtungen aus dem Kyoto Protokoll, dem EU ETS, der Effort-Sharing-Entscheidung sowie nationaler oder subnationaler verpflichtender Mechanismen und auch andere kohlenstoffarme Strategien erfordern ein Konzept, um unterschiedlichen Formen der Doppelzählung entgegenzutreten. Sowohl die Zusätzlichkeitsprüfung als auch die Vermeidung von Doppelzählung dienen dazu, die Umweltintegrität der Zertifikate zu gewährleisten und sicherzustellen, dass die Projekte Emissionsreduktionen generieren, die über die internationalen Minderungsverpflichtungen eines Staates hinausgehen.

Zusätzlichkeit: Um die Netto-Treibhausgasemissionen auf null zu bringen, müssen Kompensationsmaßnahmen sicherstellen, dass die Reduktion oder die Einbindung von Emissionen zusätzlich ist – das bedeutet, dass sie ohne die finanzierte Aktivität nicht stattgefunden hätten. Die Vernachlässigung der Zusätzlichkeitsprüfung kann die beabsichtigten Null-Emissionen beeinträchtigen und eine Netto-Emissionserhöhung zur Folge haben. Einfacher gesagt, die Zusätzlichkeitsprüfung stellt die Frage, ob eine Minderungsaktivität nicht auch ohne die Absicht, die daraus resultierenden Emissionsreduktions- bzw. Senkenzertifikate zu kaufen oder zu verkaufen, umgesetzt worden wäre.

Die Zusätzlichkeitsprüfung garantiert den Käufern, die ihre Emissionen kompensieren wollen, dass ihre Investitionen umweltwirksam sind. Zusätzlich stellt sie sicher, dass freiwillige Maßnahmen nicht ohnehin verpflichtende Aktivitäten ersetzend. Da die Zusätzlichkeitsprüfung auf Prognosen und kontrafaktischen Berechnungen basiert, wird eine gewisse Unsicherheit aber immer vorhanden sein. Je nach dem Standard des freiwilligen Marktes, der auf ein bestimmtes Klimaschutzprojekt angewandt wird, wird die Zusätzlichkeit in der Regel mit Hilfe von einem oder mehreren Tests bewiesen, die die Hürden auf verschiedenen Ebenen prüfenn, beispielsweise die finanziellen, rechtlichen, technologischen und weiteren nicht-finanziellen Hürden. Aufgrund der hohen Komplexität hat die Klimarahmenkonvention (UNFCCC) damit begonnen, das Konzept der ‚Positivlisten‘ zu etablieren. In solchen werden die Kriterien für bestimmte Projekttypen im Vorhinein festgelegt und können daraufhin von Projektentwicklern durch das Beantworten einfacher Ja-Nein-Fragen identifiziert werden.

Die Gewährleistung der Zusätzlichkeit auf Projektebene kann bei freiwilligen Projekten besonders schwer sein. Projekte im freiwilligen Markt sind oft klein und generieren nur eine begrenzte Zahl von Kohlenstoffzertifikaten und Einnahmen. Komplexe Zusätzlichkeitsprüfungen können Projektentwickler daran hindern, ihre Ideen umzusetzen. Nicht nur die hohen Kosten und der große Aufwand, sondern auch die Ungewissheit bezüglich des tatsächlichen Erfolgs der Prüfung sind große Herausforderungen, die die Kapazitäten von kleinen Initiativen überschreiten können. Des Weiteren ist die Zusätzlichkeitsprüfung auf Projektebene größtenteils ungewiss und subjektiv, weil die Prognosen auf schwer belegbaren Informationen basieren (Kollmuss et al. 2008).

Aus diesen Gründen nutzen manche freiwilligen Kompensationssysteme Leistungsstandards (performance standards), die anstatt individueller Projekte die genutzten Technologien oder Prozesse betrachten. Solche Leistungsstandards übertragen einen Teil der administrativen Belastung von Projektentwicklern auf die standardsetzende Ebene. Zu den Leistungsstandards gehören z.B. maßstabsetzende Ansätze, die ein Referenzszenario etablieren, an dem alle Projektvorschläge gemessen werden. Positiv-Technologielisten (gleich der Positivlisten des UNFCCC) stellen eine weitere Möglichkeit dar. Durch eine Liste all jener Technologien, Projekttypen und Prozesse, die in bestimmten Projektgebieten als zusätzlich angesehen werden, können Testverfahren transparenter und kostengünstiger durchgeführt werden. **Im Gegensatz zum Gold Standard und VCS nutzt die Climate Action Reserve beispielsweise einen Leistungsstandard.** Ob Leistungsstandards angemessen sind, hängt vom Projekttyp ab. Weniger umstrittene Projekttypen sind z.B. Methanvermeidung in der Landwirtschaft bzw. Mülldeponien oder Industriegas.

Doppelzählung: Unter einer Doppelzählung wird ein Szenario verstanden, in dem eine bestimmte Treibhausgasemissionsreduktion oder eine Einbindung versehentlich oder absichtlich zweimal geltend gemacht, verkauft, berichtet oder monetarisiert wird (VCS 2012; Gold Standard 2015). Doppelzählung ist ein speziell bei Kompensationsmechanismen und Emissionshandel vorkommendes Risiko, das die Umweltintegrität der Emissionsreduktions- (oder Senken-) Einheiten untergraben kann.

Doppelzählungen können in verschiedenen Formen auftreten und bei diversen Akteurskonstellationen sowohl in einem verpflichtenden, als auch einem freiwilligen Marktumfeld vorkommen. Die Folgen in Bezug auf die Umweltintegrität einer Emissionsreduktion (oder deren Einbindung) unterscheiden sich je nachdem, ob die Reduktion auf einem freiwilligen Markt oder für die Einhaltung von Verpflichtungen genutzt wird. Man kann zwischen vier Typen von Doppelzählungen unterscheiden: doppelter Verkauf (double selling), doppelte Ausgabe (double issuance), doppelte Inanspruchnahme (double claiming) und doppelte Monetarisierung (double monetisation).

Dabei kann unterschieden werden zwischen (1) denjenigen, die verhältnismäßig einfach gelöst werden können; und (2) denjenigen, die mit ernsteren Schwierigkeiten verbunden sind und eine ausführlichere Analyse benötigen.

- (1) Double selling und double issuance gefährden nicht unbedingt die Umweltintegrität, solange die Einheiten nicht doppelt geltend gemacht werden (für die Einhaltung der verpflichtenden Ziele). Darüber hinaus sind beide Arten mit Bilanzierung und Registrierung verbunden, die – theoretisch – durch die Einführung von zentralen Registern mit einem vollständigen Verzeichnis der Transaktionsgeschichte einfach gelöst werden können. Daher sind diese zwei Arten von Doppelzählung in Bezug auf rechtliche Rahmenbedingungen, die den Gestaltungsspielraum für freiwillige inländische Projekte bestimmen, weniger relevant.
- (2) Double claiming und double monetisation sind problematischer, wenn die Anrechnung neben einem Akteur auf dem freiwilligen Markt auch die Regierung eines Annex-B-Staates berührt. Double claiming ist dann ein potenzielles Problem und kann die wahrgenommene Umweltintegrität unterminieren, falls keine transparente Kommunikation sichergestellt wird.

Double monetisation verursacht hingegen eine Netto-Emissionserhöhung und beeinträchtigt die Umweltintegrität. Um die Glaubwürdigkeit des freiwilligen Kohlenstoffmarktes zu sichern, sollte double monetisation deshalb vermieden werden. Die sauberste Lösung für die Vermeidung von double claiming und double monetisation wäre eine systematische Löschung von AAUs für jedes Zertifikat, das in einem freiwilligen Projekt ausgestellt wird.

Rahmenbedingungen bis 2020

Kyoto-Protokoll und die Folgen für Doppelzählung

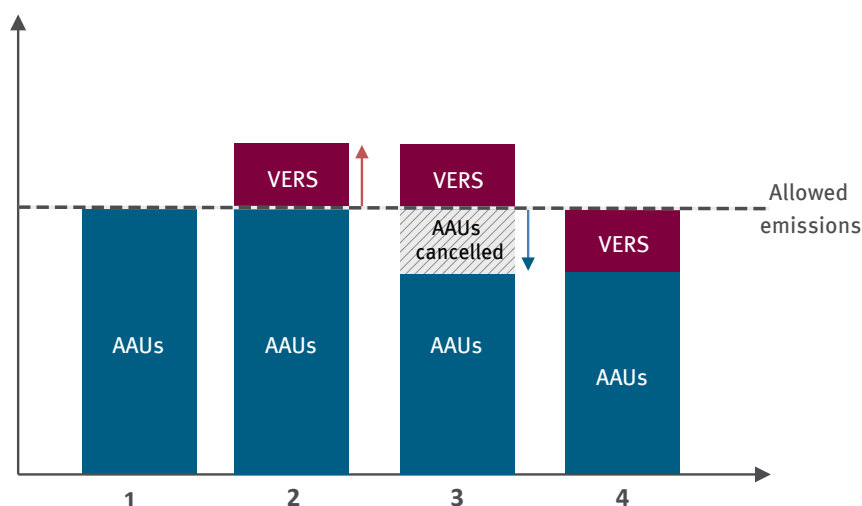


Figure 3: Löschung von AAUs bei Ausschüttung von VERs

Staaten mit verbindlichen Reduktionszielen aus dem Kyoto-Protokoll (Annex-B-Staaten) verfügen über Emissionsbudgets in der Form von ‘assigned amount units’ (AAUs). Die quantitativen Reduktionsziele sollen vor allem durch inländische Maßnahmen erreicht werden, die laut UNFCCC ein bedeutendes Element der Bemühungen darstellen (UNFCCC CMP1 2006) und Maßnahmen wie Energieeffizienz, Marktinstrumente, Kohlenstoff- bzw. Energiesteuern, rechtliche Regelungen, freiwillige Verpflichtungen oder Forschung und Entwicklung umfassen sollen (UNFCCC 2012). Inländische Kompensationsprojekte fallen auch in den Anwendungsbereich nationaler Maßnahmen, da klimarelevante Vorteile dabei innerhalb eines Staats verbleiben. Allerdings sind freiwillige inländische Projekte für die Erfüllung von Verpflichtungen aus dem Kyoto-Protokoll ungeeignet.

Double claiming: Zertifikate, die durch freiwillige nationale Projekte generiert werden, beeinflussen in der Regel das nationale Inventar und das AAU-Budget. In Sektoren, in denen keine Abrechnung im nationalen Inventar für Kyoto-Zwecke vorgesehen ist, besteht theoretisch kein Risiko von double claiming, weil sie nicht auf dem ‘Radar’ des Staates sind – allerdings gibt es, abgesehen von bestimmten LULUCF-Aktivitäten, kaum Sektoren, die durch Kyoto noch nicht abgedeckt werden. Im Ergebnis würden Annex-B-Staaten mit freiwilligen inländischen Initiativen sicherstellen müssen, dass für jedes ausgestellte freiwillige Zertifikat ein AAU annulliert wird, damit die Reduktion bzw. die Einbindung nicht doppelt geltend gemacht werden könnte.

Double monetisation: Freiwillige Projekte in Sektoren, die durch das Kyoto-Protokoll abgedeckt werden, bergen das Risiko des unbeabsichtigten Freiwerdens von AAUs und somit double monetisation. Die Löschung von AAUs für jedes Zertifikat, das auf dem freiwilligen Markt ausgestellt wird (oder eine Verpflichtung, freige-wordene AAUs nicht zu verkaufen), würde das Risiko der double monetisation vermeiden. Während double claiming nur bedeutet, dass ein Land die Reduktion auf seine Ziele anrechnet, bedeutet double monetisation, dass freige-wordene AAUs verkauft werden und es einem anderen Staat ermöglichen, seine Emissionen zu erhöhen – was somit zur Erhöhung der globalen Emissionen anstatt einer Kompensation führt. Double monetisation beeinträchtigt daher die Umweltintegrität, und double claiming kann die wahrgenommene Umweltintegrität beschädigen, falls es nicht transparent kommuniziert wird.

AAU-Löschung: Um sowohl double claiming als auch double monetisation zu vermeiden, wäre die Löschung von AAUs für Projekte in Kyoto-Sektoren also eine gute Option für Annex-B-Staaten. In der Realität haben Annex-B-Staaten allerdings nicht für alle VERs auch AAUs gelöscht.² Eines der Hauptprobleme ist fehlendes gemeinsames Verständnis davon, wie der Kohlenstoffmarkt zukünftig im Rahmen des Paris-Abkommens ausgestaltet wird. Die Regierungen müssen hier eine Führungsrolle übernehmen. Annex-B-Staaten können beispielsweise dafür sorgen, dass die freiwilligen Zertifikate, für welche sie AAUs löschen, zusätzlich und umweltverträglich sind. Solange sie dies nicht tun und unterschiedliche Standards mit unterschiedlichen Qualitätsniveaus koexistieren, ist der Gestaltungsspielraum für freiwillige inländische Projekte stark beschränkt. Die meisten international anerkannten Qualitätsstandards akzeptieren keine Projekte von Annex-B-Staaten ohne Löschung von AAUs.

Wie freiwillige Standards damit umgehen: Die meisten Qualitätsstandards in freiwilligen Kohlenstoffmärkten sehen die Löschung entsprechender Mengen an AAUs oder die grundsätzliche Vermeidung von Projekten in Annex-B-Staaten vor. Der VCS und der Gold Standard verlangen beispielsweise einen Nachweis, dass die AAUs aus dem nationalen Register gelöscht wurden, damit ein Projekt in einem Annex-B-Land zulässig ist (VCS 2012).

Europäischer Rahmen

Die Europäische Union ist ambitionierten Zielen zur Reduktion von Treibhausgasen bis 2050 verpflichtet. Die Emissionen sollen um 20 % bis 2020 und um 40 % gegenüber 1990 bis 2030 reduziert werden. Zwei Hauptinstrumente dafür sind das EU-Emissionshandelssystem (EU ETS) und die Effort-Sharing-Entscheidung (ESD).

EU ETS: Das EU-Emissionshandelssystem ist seit 2005 das zentrale Instrument der EU-Klimapolitik und das größte Emissionshandelssystem weltweit. Das System befindet sich momentan in seiner dritten Handelsperiode, die von Januar 2013 bis Dezember 2020 läuft, mit einer Emissionsobergrenze, die die Reduktion von Treibhausgasemissionen von 21 % gegenüber dem Niveau von 2005 vorsieht. Ähnlich wie beim Kyoto-Protokoll erlaubt das EU ETS Flexibilität bei der Erreichung von Emissionsreduktionszielen. Als das Kyoto-Protokoll in Kraft trat, stimmte die EU der Nutzung der flexiblen Instrumente durch die 'Linking Directive' von 2004 zu (2004/101/EC).

ESD: Das allgemeine Ziel der ESD ist die Reduktion von Emissionen aus Nicht-ETS-Sektoren, die für ca. 55 % aller EU-Emissionen zuständig sind, um 10 % bis 2020 (European Commission 2016; CDC Climat Research et al. 2015). Es ist den Mitgliedstaaten gestattet, flexible Instrumente zu nutzen, um ihre Emissionsziele zu erreichen, unter anderem Handel, zwischenstaatliches Banking oder Borrowing, auch über mehrere Jahre hinweg. Das Flexibilitätsprinzip der ESD zielt darauf ab, die Umweltintegrität und die effektive Einhaltung von Verpflichtungen zu gewährleisten und mit unterschiedlichen Kapazitäten umzugehen. Die ESD umfasst die Sektoren Verkehr, Gebäude, Landwirtschaft und Abfall, schließt aber LULUCF explizit aus.

Folgen für freiwillige inländische Projekte: In Bezug auf Doppelzählung sind die Herausforderungen für freiwillige inländische Kompensation denen aus dem Kyoto-Rahmen ähnlich. Zu den Hauptschwierigkeiten für nationale Kompensationsprojekte in EU-Staaten gehört die Tatsache, dass sich die meisten kostengünstigen Minderungstechnologien und Anlagen in ETS-Sektoren befinden und somit für freiwillige nationale Maßnahmen nicht geeignet sind (Hoozgaad und von Unger 2010). Das bedeutet, dass viele Optionen für inländische Kompensation, die übrig bleiben, hohe Minderungskosten haben, was sie finanziell unattraktiv macht. Allerdings bietet der LULUCF Sektor ein großes Potenzial für kostengünstigere Projekte und wird angesichts der Tatsache, dass das Potenzial für Emissionsreduktionen in anderen Sektoren weiter sinken wird, wahrscheinlich eine immer größere Rolle spielen.

Der nationale Rahmen: Inländische Kompensationsprojekte in Deutschland

Der deutsche Rahmen für DOP wird größtenteils durch die Verpflichtungen Deutschlands aus dem Kyoto-Protokoll und den europäischen Klima- und Energierahmen bestimmt. Diese unterscheiden sich von anderen Annex-B-Staaten nur in Bezug auf die Bandbreite der LULUCF-Aktivitäten, über die im Kyoto-Rahmen berichtet wird. Für die zweite Verpflichtungsperiode beschloss Deutschland, die Aktivitäten Grünland- und Ackerlandbewirtschaftung in das Treibhausgasinventar aufzunehmen, während Wiedervernässung und Entwässerung von Feuchtgebieten nicht ausgewählt wurden.

² Mit der Ausnahme von Bulgarien, das über 60.000 AAUs gegen Zertifikate aus dem VCS-zertifizierten Projekt „Katuntsi Small Hydro Power Project“ löschte (VCS 2015).

Wenig Spielraum für deutsche DOP: Ein Beispiel für deutsche DOP sind MoorFutures, eine Initiative, die Emissionsreduktionen aus der Wiedervernässung von Mooregebieten anbietet. Vor 2013 zählten Mooregebiete nicht zu den zur Einhaltung von Kyoto-Zielen im deutschen nationalen Treibhausgasinventar gelisteten Praktiken und lösten somit kein Problem der Doppelzählung aus. Da sich allerdings die meisten deutschen Mooregebiete inmitten von Wäldern, Ackerland oder Weideflächen befinden, können rund 85 % der CO₂-Emissionen aus deutschen Mooregebieten der Forstwirtschaft und der landwirtschaftlichen Nutzung (inklusive Weideflächen und Ackerland) zugeordnet werden. Dadurch sind double claiming und double monetization problematisch, weil Deutschland, wie die meisten Annex-B-Staaten, die Annullierung von AAUs gegen VERs nicht gestattet.

Deutsche DOP – eine Diskrepanz zwischen Angebot und Nachfrage: Die Marktanalyse, die 2015 von adelphi und sustainable im Auftrag des Umweltbundesamts durchgeführt wurde, zeigt, dass fast 50 % der deutschen Käufern von Kohlenstoffzertifikaten inländische Zertifikate bevorzugen. Allerdings kann diese Nachfrage momentan nicht gestillt werden, weil es so gut wie keine Projekte gibt, die Zertifikate aus DOP bieten. Gründe dafür sind Unsicherheit in Bezug auf die Regelungen sowie hohe Transaktions- und Minderungskosten. Die Harmonisierung des Angebots und der Nachfrage scheint ein großes Potenzial für den freiwilligen Markt zu bieten, setzt aber Änderungen in der Gesetzgebung voraus, um Anreize für die Entwicklung von DOP schaffen zu können.

Erkenntnisse aus ausgewählten freiwilligen inländischen Kompensationsinitiativen

Die folgenden Fallstudien inländischer Kompensationsinitiativen illustrieren den Umgang mit den oben geschilderten Herausforderungen.

Australien: Carbon Farming Initiative (CFI) / Emissions Reduction Fund (ERF)

Die Carbon Farming Initiative (CFI) ist ein nationales, freiwilliges Kompensationsprogramm, das durch die australische Regierung 2011 initiiert wurde. Seit 2014 ist es Teil des australischen Emissionsreduktionsfonds (Emissions Reduction Fund, ERF), des Herzstücks der Minderungsstrategie der australischen Regierung. Die CFI ermöglicht es Landwirten, sich freiwillig an Aktivitäten zu beteiligen, die Treibhausgasemissionen reduzieren oder einbinden. Hierfür erhalten sie Kohlenstoffzertifikate, die sowohl auf dem freiwilligen als auch auf dem verpflichtenden Kohlenstoffmarkt verkauft werden können. Im Rahmen der CFI werden Zertifikate als „Australian Carbon Credit Units“ (ACCUs) bezeichnet. Die CFI umfasst Aktivitäten in der Landwirtschaft und Landnutzungssektor sowie Emissionsreduktionen im Bereich Mülldeponien. Mit dem ERF wurden diese durch Aktivitäten in den Sektoren Energieeffizienz, Verkehr und flüchtige Industrieemissionen ergänzt.

Die CFI und nun auch der ERF umfassen sowohl Kyoto als auch nicht-Kyoto-Aktivitäten, und ermöglichen es den Projektentwicklern, Kyoto ACCUs oder nicht-Kyoto ACCUs zu generieren. Als die CFI eingeführt wurde, ist Australien aus der Bilanzierung der freiwilligen Aktivitäten nach Artikel 3.4 (Forst-, Acker-, Weidewirtschaft und/oder Wiederbegrünung) ausgestiegen. Projekte in den Bereichen Bodenkohlenstoff, Wildtiermanagement, verbesserte Forstwirtschaft und nicht-forstliche Wiederbegrünung konnten nur nicht-Kyoto ACCUs für den freiwilligen Markt generieren.

Seit Beginn der zweiten Kyoto-Verpflichtungsperiode und der Aufnahme von zusätzlichen verpflichtenden Aktivitäten nach Artikel 3 muss Australien alle Aktivitäten der Forstwirtschaft auf seine nationalen Klimaziele anrechnen und hat sich zusätzlich für die Anrechnung von Aktivitäten aus der Acker- und Grünlandbewirtschaftung entschieden. Dadurch ergibt sich eine deutlich kleinere Menge an Aktivitäten, die für die Erzeugung von nicht-Kyoto-ACCUs geeignet ist. Für die Aktivitäten, die mit der Gründung des ERF hinzugefügt wurden – Energieeffizienz, Verkehr und flüchtige Industrieemissionen – können nur KACCUs erworben werden. Zwischen Dezember 2012 und Juni 2016 wurden über 25 Millionen ACCUs durch die CFI und den ERF ausgestellt, davon ca. eine Million oder 4.3 % nicht-Kyoto-ACCUs.

Da Minderungen aus nicht-Kyoto ACCUs in der australischen Kyoto-Anrechnung nicht enthalten sind, besteht momentan kein Risiko von double claiming oder double monetisation.

Frankreich: Voluntary Carbon Land Certification (VOCAL)

Die Initiative Voluntary Carbon Land Certification (VOCAL) entwickelt einen methodologischen Rahmen für die Validierung von CO₂-Reduktion und -Bindung in land- und forstwirtschaftlichen Projekten in Frankreich. Das Zertifizierungsprogramm wird seit Anfang 2016 in enger Kooperation mit der französischen Regierung entwickelt. Das Umweltministerium (MEEM) nimmt am Stakeholder-Konsultationsprozess teil und ist ein Mitglied des 'Club Carbone'. Des Weiteren will MEEM den Zertifizierungsrahmen 2017 genehmigen. Danach wird es für die Validierung der Methodologien zuständig sein. Dadurch, dass der Rahmen von einer Stakeholder-Gruppe entwickelt wird, wird die Arbeitsbelastung der Regierung reduziert und die Einbeziehung der notwendigen Expertise garantiert. Zugleich kann die Billigung bzw. Genehmigung des Zertifizierungsrahmens durch den Staat zur Stärkung des Vertrauens und der Transparenz der inländischen Kompensationsprojekte beitragen und damit potenziell die Marktnachfrage erhöhen.

VOCAL wird folgende Aktivitäten umfassen: Aufforstung/Wiederaufforstung, Aufforstung, verbesserte Forstwirtschaft, Emissionsreduktionen von Feldfrüchten („grandes cultures“) und Viehhaltung. Um die Methodologie im Forstsektor zu testen, kooperiert VOCAL mit GIP Massif Central. Die Pilotprojekte zielen nicht nur auf Kohlenstoffeinbindung ab, sondern auch auf positive gesellschaftliche, wirtschaftliche und landschaftliche Auswirkungen.

Die Regelungen zu Doppelzählungen wurden noch nicht beschlossen, generell ist es aber das Ziel von VOCAL, zu nationalen und europäischen Treibhausgasreduktionszielen beizutragen. Transparenz soll für den Ansatz zentral sein: Solange Projekteinheiten und die Emissionsanrechnung klar und transparent sind, können involvierte Stakeholder ihre freiwilligen Beiträge und mögliches double claiming klar kommunizieren.

Italien: Codice Forestale del Carbonio

Italien rechnet das CO₂, das in öffentlichen wie privaten italienischen Forstgebieten gespeichert wird, in RMUs um, um sie potenziell zur Einhaltung der Emissionsreduktionsverpflichtungen aus dem Kyoto-Protokoll zu nutzen. Um mögliches double claiming zu vermeiden, wird italienischen Forstbesitzern daher nur ein begrenzter Zugang zu Kohlenstoffmärkten gewährt. Die italienische Initiative „Codice Forestale del Carbonio“ (FCC – Forest Carbon Code) wurde mit dem Ziel gegründet, sich dieses Problems anzunehmen und arbeitet an innovativen Ansätzen der Kohlenstoffbindung, die außerhalb der typischen Projekttypen in der Forstwirtschaft liegen. Das Ziel des 2012 ins Leben gerufenen FCCs ist die Schaffung von öffentlichen und privaten Investitionsanreizen für eine kohlenstoffarme Wirtschaft. Neue Forstgebiete sollen geschaffen und grüne Systeme im landwirtschaftlichen und städtischen Raum in Italien verbessert werden. Der FCC unterstützt die Entwicklung inländischer Projekte im Forstbereich für den freiwilligen Kohlenstoffmarkt.

Der FCC bietet ein Handbuch für Projektentwickler und konzentriert sich auf Investitionen im Forst- und Agrarlandmanagement sowie die Förderung nachhaltiger Bewirtschaftung von Grünflächen. Trotz der großen Bedeutung des Forstsektors funktionieren viele Projekte immer noch ohne Leitlinien, Qualitätsstandards und externe Zertifizierung oder wenden ihre eigenen Standards an, da die Zertifizierungskosten externer Standards für Mikro- bzw. Kleinprojekte zu hoch sind. Während der FCC keine formelle Zertifizierung der Forstprojekte bietet, stellt er Good-Practice-Leitlinien bereit und geht auf die Hauptprobleme ein, die Projektentwickler berücksichtigen sollen, um die Qualitätsstandards zu erhöhen und den Prozess der Kohlenstoffzertifizierung in Italien zu harmonisieren.

Für die Berichterstattung zur Forstwirtschaft nach Artikel 3.4 des Kyoto-Protokolls verwendet Italien eine sehr breite Definition von bewirtschafteten Forstgebieten – alle italienischen Forstgebiete werden als bewirtschaftete Gebiete betrachtet. 2006 wurde für Italien eine Obergrenze von 2,78 Mio t CO₂-Äq pro Jahr für Kohlenstoffbindung, für die RMUs genutzt werden können, gesetzt. Allein 2009 sorgten LULUCF-Aktivitäten, hauptsächlich Forst, Ackerland und Weideflächen, für die Einbindung von 94,7 Mio t CO₂, was die erlaubte Anrechnungsgrenze deutlich überschritt.

Dadurch ergibt sich ein großes Volumen an Kohlenstoffeinsparungen, das nicht zur Erreichung des italienischen Kyoto-Ziels angerechnet werden darf und das theoretisch zum Teil durch den freiwilligen Markt genutzt werden könnte. Während double monetisation und double claiming also theoretisch möglich wären, können sie unter dem FCC praktisch nicht vorkommen und stellen somit kein Problem dar.

Spanien: 'Calculo, reduzco, compenso' / 'Fondo de Carbono para una Economía Sostenible (FES-CO₂)'

Es gibt zwei Kompensationsprogramme in Spanien: (1) Der spanische 'Fondo de Carbono para una Economía Sostenible' (FES-CO₂) soll freiwilliges privates Engagement zur Emissionsreduktion in Sektoren außerhalb des EU ETS fördern. Das Programm ist auf den Binnenmarkt beschränkt und lässt den Zertifikathandel außerhalb Spaniens nicht zu. (2) Das freiwillige Register zum CO₂-Fußabdruck (Registro de huella de carbono, compensación y proyectos de absorción – RHC) generiert Zertifikate aus freiwilligen Projekten im Forst- und Landnutzungssektor. Die Zertifikate können von Unternehmen gekauft werden, die ihre Kohlenstoffemissionen aus freien Stücken reduzieren wollen.

Die Teilnahme am FES-CO₂-Programm ist für Unternehmen freiwillig, es ist jedoch vorgesehen, dass die Projekte zum spanischen ESD-Ziel beitragen. Momentan werden die Einheiten also nicht tatsächlich auf dem Kohlenstoffmarkt für Kompensation gehandelt, sondern dafür verwendet, die Emissionen in Sektoren außerhalb des EU ETS zu reduzieren und der spanischen Regierung dabei zu helfen, ihr Reduktionsziel zu erreichen. Einsparungen aus den Projektkategorien Landwirtschaft, Gebäude, Abfall, Industrie, Verkehr und fluorierte Treibhausgase werden dem ESD-Ziel sowie unter den Verpflichtungen unter dem Kyoto-Protokoll angerechnet. Double claiming ist demnach möglich, doch da die Nutzung für die spanischen Reduktionsziele klar kommuniziert wird, stellt es kein Umweltintegritätsproblem dar. AAUs werden nicht an andere Annex B Staaten verkauft, weshalb double monetisation nicht vorkommt.

Projektaktivitäten, die für den RHC zulässig sind, nämlich Wiederaufforstung mit Landnutzungsänderung und Wiederaufforstung existierender Wäldern, gehören zu den gemäß Art. 3.3 (Typ A) und 3.4 (Typ B) des Kyoto-Protokolls verpflichtenden Berichtskategorien und müssen somit im spanischen nationalen Inventar aufgelistet und den Kyoto-Zielen angerechnet werden. Dadurch entsteht für die Projekte, zumindest auf internationaler Ebene, das Risiko der Doppelzählung. In Bezug auf den europäischen Rahmen stellt Doppelzählung bis 2021 kein Risiko dar. Außerdem taucht das Problem in der Praxis nicht auf, weil die Anrechnungsgrenzen des Kyoto-Protokolls im Bereich des Forstmanagements im Fall Spanien weit überschritten sind.

Schweiz: Inländisches Verpflichtungssystem

Durch ihr CO₂-Gesetz verpflichtete sich die Schweiz dazu, ihre Treibhausgasemissionen bis 2020 um 20 % bis auf 40 Millionen t CO₂-Äq zu reduzieren. Mehrere Instrumente und Strategien wurden eingeführt, um dieses Ziel zu erreichen, u.a. das schweizerische ETS, die CO₂-Abgabe für fossile Brennstoffe und das nationale Kompensationsprogramm. Im Rahmen des Kompensationsprogramms sind die Importeure und Hersteller fossiler Treibstoffe gesetzlich dazu verpflichtet, 10 % aller verkehrsbezogenen Emissionen bis 2020 zu kompensieren. Die Quoten steigen jährlich, beginnend mit 2 % im Jahr 2014, und zielen darauf ab, eine akkumulierte Menge von 6.5 Mio t CO₂-Äq zwischen 2013 und 2020 zu erreichen. Brennstoffimporteuren ist es freigestellt, ihre Emissionen entweder durch den Kauf von Zertifikaten aus inländischen Projekten in der Schweiz oder durch die Umsetzung eigener Emissionsreduktionsprojekte zu kompensieren.

Das nationale Schweizer Kompensationsprogramm unterscheidet sich von anderen in dieser Analyse untersuchten Beispielen, da es keinen freiwilligen Mechanismus darstellt. Das hat große Auswirkungen auf sein Verhältnis zum bestehenden internationalen Rahmen. Da die Reduktionen von Treibhausgasemissionen, die mit Hilfe von inländischen Kompensationsprojekten in der Schweiz erzielt werden, dem nationalen Klimaziel zugeschrieben werden, sieht das Kompensationsprogramm weniger Einschränkungen in Bezug auf Sektoren vor, in denen Projekte und Programme umgesetzt werden können. Theoretisch können Aktivitäten in jedem Sektor, der für Verpflichtungszwecke geeignet ist, auch für den inländischen Kompensationsmechanismus genutzt werden, ohne dem Risiko von double claiming oder double monetisation ausgesetzt zu sein, solange die Zertifikate nicht außerhalb der Schweiz verkauft werden. Double monetisation stellt innerhalb des Kompensationsprogramms kein Problem dar, da es sich nicht um einen freiwilligen Mechanismus handelt. Da die Reduktionszertifikate in der Schweiz ausgestellt werden und auch dort verbleiben müssen, kann auch double claiming durch ein anderes Land mit Reduktionsverpflichtungen nicht vorkommen. Die Wahrung der Umweltintegrität ist sichergestellt, da es nur einen Akteur mit Reduktionsverpflichtungen gibt, die Schweizer Regierung, und die Anrechnung der Kohlenstoffeinsparungen auf die schweizerischen Klimaziele transparent kommuniziert wird.

Großbritannien: Woodland Carbon Code (WCC)

Der 2011 ins Leben gerufene Woodland Carbon Code (WCC) ist ein freiwilliger Standard, der Zertifikate für Forstprojekte in Großbritannien generiert. Seit 2011 wurden über 200 Projekte mit einem Gesamtvolumen von 15.841 Hektar und einem Einbindungspotenzial von 5.848 Millionen t CO₂-Äq über die nächsten 100 Jahre registriert. 125 der 200 Projekte wurden bereits validiert.

Ein Teil der Zertifikate wird ex-ante als sogenannte „Pending Issuance Units“ (PIUs) ausgestellt. Dies sind vorläufige Zertifikate, die das Versprechen beinhalten, in Zukunft Treibhausgase zu binden, die aber noch nicht geltend gemacht werden können. Einheiten aus dem Woodland Carbon Code können zur Kompensation von Treibhausgasen nur ‘ex-post’, das heißt nach der Verifizierung der Kohlenstoffeinbindung und der Überführung der PIUs in Woodland Carbon Units (WCUs), angerechnet werden. Seit 2014 sind PIUs für den Kauf verfügbar. WCC-Aktivitäten fallen unter die Kategorie „direct, human-induced, afforestation, reforestation and deforestation activities“ und sind somit im nationalen Inventar der UK gemäß der LULUCF-Regelungen aus dem Kyoto-Protokoll aufgelistet. Die RMUs finden also Eingang in das nationale Inventar. Es wird klar kommuniziert, dass WCUs somit zum Erreichen des britischen Klimaziels beitragen. Während double claiming vorkommt, aber unproblematisch ist, ist double monetisation ausgeschlossen, da das britische Emissionsreduktionsziel im Vergleich zu internationalen Verpflichtungen ambitionierter ist und Großbritannien sich zur Annullierung aller überflüssigen AAUs verpflichtet hat. Darüber hinaus sind PIUs und WCUs nur für inländische Käufer verfügbar.

Perspektiven nach 2020

Paris-Abkommen

Das Pariser Klimaabkommen ist am 4. November 2016 in Kraft getreten, nachdem es über 55 Vertragsparteien, die für mehr als 55 % der globalen Treibhausgasemissionen verantwortlich sind, ratifiziert haben. Im Gegensatz zum statischen Rahmen des Kyoto-Protokolls werden von allen Vertragsparteien des Pariser Abkommens Beiträge auf der Grundlage des Grundsatzes der gemeinsamen aber unterschiedlichen Verantwortung und der jeweiligen Fähigkeiten (Common but Differentiated Responsibilities and Respective Capabilities, CBDRRC) erwartet. Das Pariser Abkommen erweitert somit die Anzahl der Vertragsparteien mit Verpflichtungen erheblich und schließt auch jene Vertragsparteien mit ein, die das Kyoto-Protokoll nicht ratifiziert haben bzw. wieder daraus ausgetreten sind – also auch die beiden Länder mit den meisten Emissionen weltweit, die USA und China. Durch nationale Beiträge (intended nationally determined contributions, NDC) hat die Klimarahmenkonventionen einen Rahmen für Zusagen geschaffen, die nun in rechtlich verbindliche Ziele im Rahmen des neuen Mechanismus der nationally determined contributions (NDCs) umgewandelt werden.

Obwohl Märkte nicht explizit erwähnt werden, lässt das Pariser Abkommen „the use of internationally transferred mitigation outcomes towards nationally determined contributions“ laut Artikel 6.2 zu und schafft somit die Grundlage für neue Marktmechanismen. Da es keine Unterscheidung mehr zwischen Annex I und nicht-Annex-I-Staaten geben wird, dürfen alle Parteien Emissionsreduktionszertifikate oder „internationally transferred mitigation outcomes“ (ITMOs) kaufen oder verkaufen. ITMOs können im Wesentlichen aus jedem bilateralen, regionalen oder multilateralen Kohlenstoffmechanismus, Technologietransfer, Emissionshandelssystem oder sogar aus Klimafinanzierung gewonnen werden (Prell 2015).

Das Pariser Abkommen sieht auch einen möglichen Nachfolgemechanismus für JI und CDM vor. Der Mechanismus, der sowohl auf private als auch auf öffentliche Akteure ausgerichtet ist, wird bei der UNFCCC verankert und von einem von den Vertragsparteien bestimmten Gremium beaufsichtigt werden.

Das Pariser Abkommen sieht vor, dass kooperative Ansätze zur Steigerung der Ambitionen der Vertragsparteien zur Umsetzung der NDCs beitragen. Dies könnte ein großes Potenzial für inländische Kompensationsmechanismen bieten, da ambitioniertere Ziele die Nachfrage nach Kohlenstoffzertifikaten wahrscheinlich erhöhen werden. Unter anderem haben wichtige Vertragsparteien einschließlich der EU und der USA explizit erwähnt, dass sie planen, ihre ursprünglichen Ziele ohne internationale Kompensationsmechanismen zu erreichen. Das könnte neue Perspektiven für inländische Projekte bei der Abdeckung des zusätzlichen Minderungsbedarfs eröffnen, der aus dem Pariser Abkommen resultiert. Allerdings schließt der Ambitionssteigerungsmechanismus, der im Pariser Abkommen verankert wurde, die Nutzung der internationalen Kompensationsmechanismen zur Erreichung von ambitionierteren Zielen in einer späteren Phase nicht aus.

Europäischer Rahmen: erweiterte Flexibilität im Rahmen der Effort Sharing Regulation (ESR)

Auf DOP könnte mit einer ambitionierten ESR ab 2021 eine größere Rolle auf dem europäischen Kohlenstoffmarkt zukommen. Der Vorschlag für die neue ESR (2021 bis 2030), der im Juli 2016 veröffentlicht wurde, beinhaltet zwei neue Flexibilitätsinstrumente. Erstens können Mitgliedsstaaten eine begrenzte Menge an EU-ETS-Zertifikaten nutzen, um ihre nationalen Klimaziele in Nicht-ETS-Sektoren zu erreichen. Zweitens können im Inland generierte Reduktionen aus dem Landnutzungssektor (dies schließt wiederaufgeforstetes Land, bewirtschaftetes Weideland und bewirtschaftetes Agrarland mit ein) bis zu einer festgelegten Grenze nationalen Klimazielen angerechnet werden (European Commission 2016). Zusammen mit den gesteigerten Einsparungszielen in Nicht-ETS-Sektoren für den Zeitraum von 2012 bis 2030 kann dies ein großes Potential für DOP bedeuten. Reduktionspotentiale aus dem LULUCF-Sektor werden aller Voraussicht nach eine wichtigere Rolle spielen, gleichzeitig verlangt dies jedoch auch nach robusten Rahmenbedingungen.

Zusammen mit der neuen ESR wurde ein Entwurf der Europäischen Kommission veröffentlicht, in dem sie dafür plädiert, Emissionen und Treibhausgasreduktionen aus dem LULUCF-Sektor in den Klima- und Energierahmen 2030 aufzunehmen. Im Entwurf wird die Anrechnung für LULUCF für die Zeitperiode von 2021 bis 2030 mit kleineren Änderungen von den durch die Entscheidung 529/2013/EU etablierten Regeln vorgeschlagen (European Commission 2016). Der neue Rahmen sieht die „no-debit rule“ vor, wonach kein Mitgliedstaat Netto-Emissionen aus LULUCF haben darf. Flexibilitätsinstrumenten umfassen u. a. die Summierung von Netto-Reduktionen binnen zehn Jahren und die Weitergabe von überschüssigen Reduktionen an andere Mitgliedstaaten. Zusammen mit der „no-debit rule“ schafft dies neue Anreize für die Reduzierung und Einbindung von Treibhausgasen über nationale Verpflichtungen hinaus.

Empfehlungen

Freiwillige Kohlenstoffmärkte haben immer eine Pionierrolle gespielt. Diese wichtige Rolle kann ihnen auch für den Zeitraum nach 2020 zukommen. Zugleich gibt es für den freiwilligen Kohlenstoffmarkt nur einen begrenzten regulativen Rahmen. Mehrere Qualitätsstandards und freiwillige Initiativen mit unterschiedlichen Regulierungsniveaus sowie vielfältige Wahrnehmungen in Bezug auf Umweltintegrität, robuste Anrechnungsregeln und Doppelzählung existieren nebeneinander. Diese regulatorische Unsicherheit spiegelt sich auch im Umfang der freiwilligen Zertifikate weltweit wieder: 2015 waren nur 1,4 % des Umfangs der globalen Kohlenstoffmärkte dem freiwilligen Markt zurechenbar (Ecosystem Marketplace 2016; Thomson Reuters 2016).

Freiwillige Kohlenstoffmärkte können eine wichtigere Rolle beim Erreichen des globalen Ziels spielen, die globale Klimaerwärmung auf deutlich unter 2°C zu begrenzen. Angesichts der Ambitionsücke sind größere Anstrengungen notwendig. Durch die wachsende Reichweite von Minderungsaktivitäten, die im Rahmen international wie regional verpflichtender Systeme stattfinden, muss der Gestaltungsspielraum für freiwillige inländische Projekte Schritt für Schritt auf den Verpflichtungsmarkt abgestimmt werden. In Anbetracht unterschiedlicher Rahmenbedingungen müssen freiwillige Projekte Lösungen auf Fragen von double claiming und double monetisation finden. Außerdem muss der freiwillige Kohlenstoffmarkt in einer Welt nach dem Pariser Abkommen, in dem sich im Gegensatz zur Kyoto-Ära nun fast alle Länder verbindliche Ziele gesetzt haben, seine Rolle neu definieren. Um freiwillige Initiativen für den Klimaschutz zu fördern und zu unterstützen, können staatliche Stellen einen robusten Regulierungsrahmen zu schaffen, in dem Projektentwickler qualitative hochwertige freiwillige Zertifikate generieren könnten.

Folgende Empfehlungen können zur Lösung der beschriebenen Probleme beitragen:

Keine Nischen mehr: Der Regulierungsrahmen kann Doppelzählung vermeiden helfen

Der Start des EU ETS im Jahr 2005 und der Beginn der ersten Kyoto-Verpflichtungsperiode im Jahr 2008 stellten eine wichtige Veränderung für freiwillige Kompensationsmärkte dar, die damals größtenteils breiten Spielraum für Klimamaßnahmen boten. Zwar wurden mit bindenden Emissionsreduktionszielen verschiedene Kohlenstoffmärkte etabliert, jedoch brachten sie auch das Problem der Doppelzählung im freiwilligen Markt hervor. Seitdem hat sich die Bandbreite der Aktivitäten, die keinem Risiko von double claiming oder double monetisation unterliegen, immer weiter verringert und wird ab 2020 noch weiter zurückgehen.

Momentan können freiwillige Kohlenstoffinitiativen noch immer Nischenansätze in jenen Sektoren entwickeln, die in nationalen Inventaren für Verpflichtungszwecke nicht vollständig abgedeckt sind, allerdings sind solche Nischen in Annex-B-Staaten auf LULUCF-Aktivitäten begrenzt, die noch nicht freiwillig im Rahmen des Kyoto-Protokolls ausgewählt wurden.

Für die EU-Mitgliedstaaten wird sich diese Lücke spätestens mit der neuen Effort Sharing Regulierung ab 2021 schließen. Staaten sollten deshalb Raum für freiwillige Projekte schaffen, indem sie klare Rahmenbedingungen zur Vermeidung von Doppelzählung schaffen.

Löschung von AAUs: Um dies zu erreichen, können Regierungen für freiwillige Zertifikate die entsprechende Menge AAUs (oder Äquivalente nach 2020) löschen, um double claiming und double monetisation einwandfrei auszuschließen und damit Anreize für freiwilliges Engagement zu schaffen.

Bedenken, durch die Löschung von AAUs nicht umweltverträgliche Emissionsreduktionen zu unterstützen, stellen zurzeit den größten Hinderungsgrund dar, diesen Ansatz in die Tat umzusetzen. Zugleich zertifizieren international anerkannte Qualitätsstandards wie der Gold Standard und VCS keine Emissionsreduktionseinheiten in Annex-B-Staaten des Kyoto-Protokolls, es sei denn diese löschen im gleichen Maße AAUs. Um diesen Kreis zu durchbrechen, könnten die Regierungen die Löschung von AAUs (oder äquivalenten Einheiten nach 2020) für freiwillige Projekte erwägen, falls die Standards bestimmte Anforderungen erfüllen. Alternativ könnte sich der Staat – bürokratisch einfacher – verpflichten, frei werdende AAUs nicht an andere Staaten zu verkaufen. Diese beiden Variante würden auch dafür sorgen, dass freiwillige Projekte wirklich zusätzlich zum Verpflichtungsmarkt sind.

Mindestens fünf EU-Mitgliedstaaten, (Dänemark, Deutschland, die Niederlande, Schweden und Großbritannien) haben die Entscheidung getroffen, ihre überflüssigen AAUs und ERUs zu löschen, die aus dem Übererreichen der Ziele der ersten Kyoto-Verpflichtungsperiode bis 2012 resultierten (Government of Sweden 2015). Eine ähnliche Entscheidung für die zweite Verpflichtungsperiode (wenn sie denn ratifiziert würde) könnte es Projektentwicklern zu ermöglichen, ohne Risiko von double claiming oder double monetisation Anreize für private Minderungsaktivitäten zu schaffen.

Abzug der freiwilligen Reduktionen/Einbindungen in nationalen Inventaren: Eine andere, allerdings etwas kompliziertere Lösung wäre es, Treibhausgasreduktionen und Einbindungen aus freiwilligen Projekten nicht im nationalen Inventar anzurechnen – sie würden somit nicht zur Erreichung der nationalen Klimaziele angerechnet. Während damit letztlich das gleiche Ergebnis wie bei der Löschung der AAUs erreicht wird, könnte sich die Umsetzung komplizierter gestalten, da zurzeit in nationalen Inventaren nicht zwischen Reduktionen bzw. Sequestrierung aus freiwilligen und verpflichtenden Maßnahmen unterschieden wird. Dies könnte aber überlegenswert sein. Im ersten Schritt wäre es also notwendig, ein zentrales Register für freiwillige Projekte anzulegen. Falls inländische Projekte in der Lage wären, zu garantieren, dass die Emissionsreduktionen oder Einbindungen dem nationalen Inventar nicht zugeschrieben wurden, könnten sie sogar zur Zertifizierung durch Standards wie dem Gold Standard zugelassen werden. In diesem Fall könnte die Regierung einfach die Daten aus dem entsprechenden Gold Standard Register nutzen, um freiwillige Emissionsreduktionen vom nationalen Inventar abzuziehen.

Freiwillige Qualitätsstandards bewerten und empfehlen

Während viele Staaten zögern, Qualitätsstandards des freiwilligen Marktes zu empfehlen, zeigen einige Beispiele, dass freiwillige Standards immer mehr, auch im Kontext der verpflichtenden Aktivitäten, anerkannt werden. Der VCS wurde beispielsweise vor kurzem als Kompensationsmechanismus für Instrumente wie das kalifornische Cap-and-Trade-Programm oder die südafrikanische Carbon Tax Regulation anerkannt (VCS 2016). Das zeigt, dass freiwillige Standards zunehmend als Alternativen zu konventionellen Standards im Verpflichtungsmarkt wahrgenommen werden, um Stringenz und Umweltintegrität zu gewährleisten. Während die offizielle Empfehlung freiwilliger Kompensationsmechanismen eine sorgfältige Bewertung benötigt, könnte sie eine Möglichkeit bieten, auf anerkannten Standards aufzubauen und bereits existierende Infrastruktur nutzen, statt parallele Strukturen zu schaffen, die das Risiko von Doppelzählungen erhöhen. Dies könnte zum Beispiel durch eine Positivliste anerkannter Standards oder die Festlegung von Mindestanforderungen erfolgen.

Selbst wenn dafür detailliertere Leitlinien notwendig wären, könnte das auch ein sinnvoller Ansatz für Methodologien sein: Zusätzlichkeitsregeln könnten auf solchen Kriterien oder Positivlisten basieren und somit die Projektentwicklung erleichtern und inländische Kompensationsprojekte befördern. Die Zusätzlichkeitsprüfung ist oft ein sehr langwieriges und kostenintensives Verfahren, das die Transaktionskosten für Entwickler von Kleinprojekten wesentlich erhöht. Zugleich können weniger komplexe Verfahren auch weniger präzise sein. Deshalb muss ein Kompromiss zwischen Kosten und Gründlichkeit der Zusätzlichkeitsprüfung getroffen werden.

Um den Projektentwicklern mehr Investitionssicherheit zu geben, wechselten manche Initiativen wie der australische ERF und der italienische Forest Carbon Code von projektbasierten zu aktivitätsbasierten Zusätzlichkeitsprüfungen und führten Positivlisten ein, die Technologien und Aktivitäten benennen, die per se als zusätzlich betrachtet werden. Die Standardisierung der Zusätzlichkeitsprüfung durch Positivlisten oder Leistungskriterien reduziert wesentlich die Anforderungen, die an Projektentwickler gestellt werden. Zugleich entsteht dadurch das Risiko, dass nicht zusätzliche Zertifikate generiert werden. Konservative Kriterien sowie anspruchsvollere Prüfung von Großprojekten können hier Abhilfe schaffen.

Potenzial des LULUCF- bzw. AFOLU-Sektors ausschöpfen

Da die internationale Gemeinschaft eine klimaneutrale Welt bis Ende des Jahrhunderts anstrebt, werden Kohlenstoffsenken eine immer größere Rolle spielen. Dadurch, dass das Potenzial für Emissionsreduktionen in anderen Sektoren nicht unbegrenzt ist, insbesondere unter der Annahme, dass die Wirtschaft weiterhin wächst, kann das Ziel der Klimaneutralität nur mit Hilfe von Kohlenstoffbindung aus dem LULUCF- oder AFOLU-Sektor erreicht werden. Um das Potenzial von Kohlenstoffsenken im Inland auszuschöpfen, sind private Initiativen notwendig: In Deutschland befinden sich beispielsweise fast 50 % aller Wälder in privatem Besitz, meistens in fragmentierten Gebieten, die kleinen Unternehmen gehören. Das Pflanzen von Bäumen oder andere LULUCF- oder AFOLU-Projekte sind noch immer bei Unternehmen beliebt, die Teile ihrer Treibhausgasemissionen aus Gründen der Corporate Social Responsibility (CSR) freiwillig kompensieren, weil die Wirkung sichtbarer und damit leichter zu kommunizieren ist als bei Emissionseinsparungen durch Technologieinnovationen. Zudem sind die meisten inländischen Kompensationsinitiativen in diesem Sektor aktiv und haben viel Erfahrung mit der Entwicklung und Umsetzung von Projekten zur Emissionsreduktion und in Senkenprojekten, auf die der Verpflichtungsmarkt zurückgreifen könnte.

Allerdings gibt es auch einige Nachteile und der Sektor ist für Projektentwickler aus mehreren Gründen nicht besonders attraktiv. Erstens bleibt es eine Herausforderung, das Potenzial der Kohlenstoffsenken zuverlässig zu berechnen und angemessene Kriterien zu etablieren. Abgesehen davon sollen LULUCF-Zertifikate nur ex-post verkauft werden, weil sie keine sofortigen Klimavorteile schaffen und ein hohes Risiko der Nichterfüllung der versprochenen Reduktionen mit sich bringen. Dadurch müssen Projektentwickler vorab hohe Investitionen ohne Sicherheit bezüglich der tatsächlichen Erlöse tätigen. Um privates Engagement im AFOLU-Sektor anzuregen, könnten Regierungen den Land- und Waldbesitzern daher anfänglich finanzielle Unterstützung leisten, damit diese entsprechende Projekte entwickeln und umsetzen können. Die neue Flexibilität in Bezug auf die Landnutzung unter der neuen ESR ab 2021 könnte ein guter Ausgangspunkt für die Entwicklung von Leitlinien und Standards für die Zertifizierung inländischer AFOLU-Projekte sein.

Ambitionsücke mit freiwilligen Aktivitäten schließen

Was als Widerspruch erscheint – freiwillige inländische Kompensationen für Verpflichtungsziele zu nutzen – kann in der Tat eine realistische Lösung darstellen, um sich auf den Pfad in Richtung des Erreichens des ambitionierten Klimaziels zu begeben. Um die Ambitionsücke zu schließen, werden mehr Anreize benötigt, um Projektentwickler zu unterstützen. Auch wegen der absehbaren staatlichen Nachfrage nach umweltverträglichen Emissionsreduktionen können freiwillige inländische Initiativen eine Alternative zum Kauf von internationalen Zertifikaten bieten. Neben der Deckung der großen Nachfrage nach inländischen Zertifikaten auf dem freiwilligen Markt kann die Nutzung der Zertifikate aus DOP für die Erfüllung nationaler Verpflichtungen als ein fairer Beitrag zum globalen Klimaziel betrachtet werden. Die untersuchten Initiativen in Spanien und in der Schweiz bieten hierbei nützliche Hinweise für mögliche Umsetzungsformen. Die Anpassung der Regeln für die öffentliche Beschaffung könnte einen weiteren Ausgangspunkt in dieser Hinsicht darstellen.

Ein durch eine zentrale nationale Behörde bewilligtes System für freiwillige inländische Projekte könnte weitere Anreize setzen. Aufbauend auf Beispielen guter Praxis aus anderen Ländern könnte die Regierung den Projektentwicklern mittels eines solchen Systems garantieren, ihnen eine festgelegte Menge der von ihnen generierten Zertifikate abzukaufen - ähnlich dem australischen Modell. Zugleich könnten zentral anerkannte Zertifikate über den freiwilligen Kohlenstoffmarkt verkauft werden. Dies würde mehrere Probleme zugleich lösen:

- ▶ **Stärkung der Investitionssicherheit:** Der von der Regierung garantierte Ankauf einer bestimmten Menge an Zertifikaten mit festgelegten Qualitätsmindestanforderungen gibt den Projektentwicklern mehr Planungssicherheit.

- ▶ Unterstützung innovativer Lösungen: Das Potenzial in Sektoren ohne Verpflichtungsziele wird weiter sinken. Das Innovationspotenzial des Privatsektors wird daher dringend benötigt, um den ambitionierten Klimazielen gerecht werden zu können.
- ▶ Vermeidung von double claiming und double monetisation: Das Zusammenführen aller freiwilligen Aktivitäten in einem nationalen Rahmenwerk wird es einfacher machen, geeignete Maßnahmen treffen zu können, die double claiming und double monetisation vermeiden (z.B. Löschung der AAUs).
- ▶ Sicherung der Umweltintegrität der Reduktionen: Ein solches System bietet den Regierungen Kontrolle über die Qualitätsanforderungen, die an inländische Projekte gestellt werden.
- ▶ Schaffung eines neuen Angebots: Während das Interesse an inländischen Kompensationszertifikaten hoch ist, gibt es derzeit einen Angebotsmangel. Ein durch die Regierung anerkanntes inländisches Kompensationssystem, das die Vermeidung von double claiming und double monetisation garantiert, könnte zu mehr inländisch generierten Zertifikaten führen.
- ▶ Schaffung lokaler, sozialer, wirtschaftlicher und ökologischer Vorteile: Kompensationsprojekte können vielfache Vorteile über die Kohlenstoffreduktion hinaus bringen, darunter beispielsweise Gesundheitsverbesserungen, die Erhaltung der Umwelt, die Förderung lokaler Infrastruktur und Wirtschaftsinvestitionen sowie Technologietransfer.

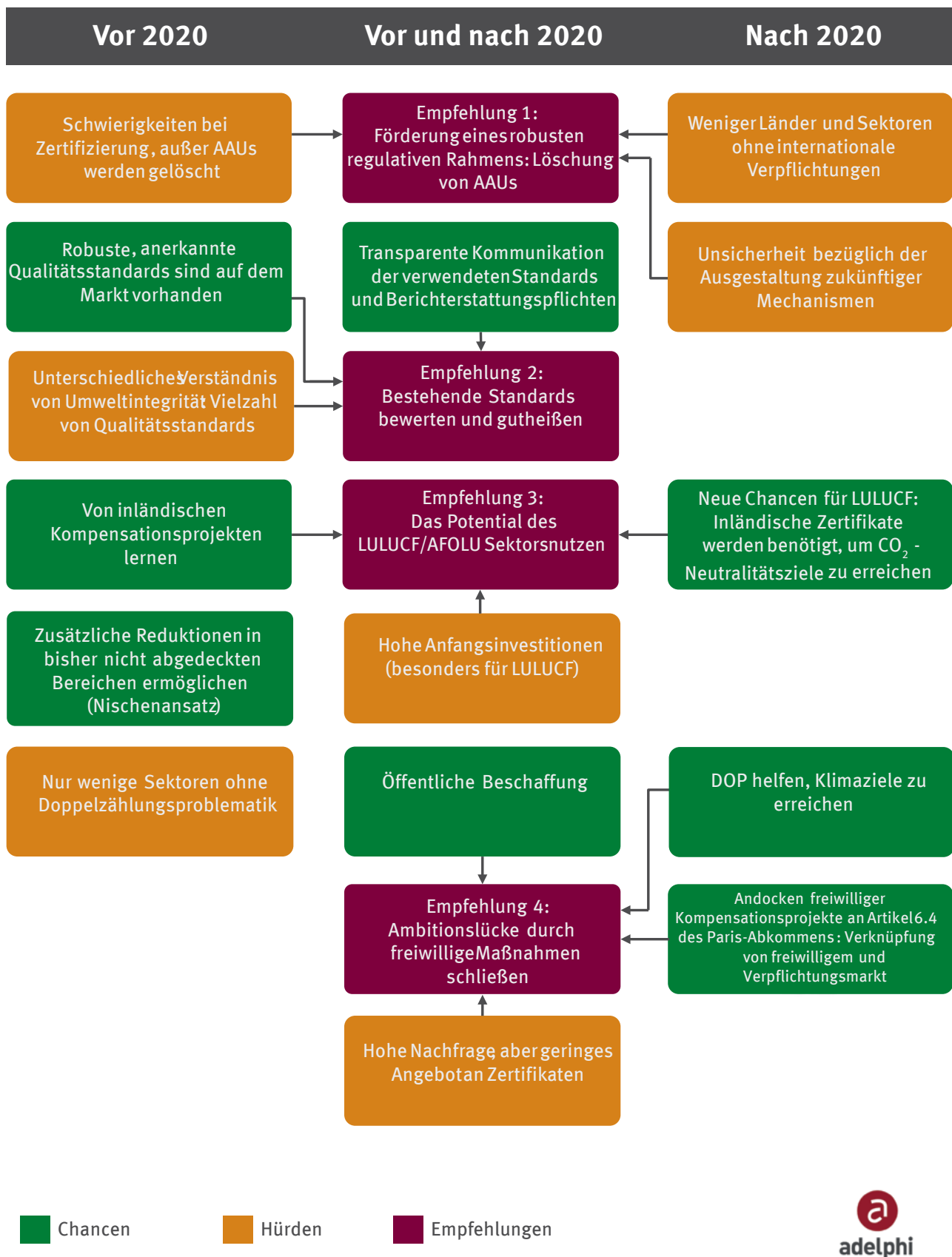


Figure 4: Möglichkeiten und Herausforderungen bis und nach 2020

1 Introduction

Voluntary domestic offset schemes offer great potential as instruments for advancing ambitious climate action and supporting the transformation towards low-carbon economies. At the same time, their possible scope of action in countries with reduction targets is limited by international, regional and national regulations on climate protection. Mitigation commitments from the Kyoto Protocol (KP), the EU ETS and national or subnational compliance mechanisms enhance the risk of different forms of double counting and make it difficult for project developers to prove additionality. Adding to these challenges, the regulatory framework will change after 2020.

More countries have already successfully implemented initiatives for the development of domestic carbon offset projects, but there is no common framework for accounting and certifying greenhouse gas GHG mitigation activities in the voluntary market and for embedding it in the compliance market yet.

This study carried out by adelphi on behalf of the German Emissions Trading Authority (DEHSt) at the German Environmental Agency (UBA) seeks to analyse the characteristics of initiatives in countries that generate carbon credits from domestic projects (mainly) for voluntary compensation. It aims at identifying the respective challenges and opportunities and to develop recommendations for improving these conditions in order to advance the development of a domestic voluntary market and leverage its potential for a climate-neutral world.

2 Concepts and definitions

2.1 Domestic offset projects

Reducing the emission of greenhouse gases into the atmosphere is considered the primary and most effective approach to climate change mitigation. However, avoiding greenhouse gas emissions may not always be possible or may be considered too costly in some instances. The mechanism of carbon offsetting solves this dilemma by offering emitters to compensate for their emissions by reducing the equivalent amount of greenhouse gases elsewhere, resulting in a zerosum game for the global climate. Offsets are therefore supposed to complement, not replace efforts to reduce a carbon footprint. Domestic Offset Projects (DOPs) are a project-based mechanism to offset GHG emissions within the country in which they originate.

Offset schemes like the Kyoto Protocol's Joint Implementation (JI) and Clean Development Mechanism (CDM) rely on the principle of cost effectiveness and, by establishing an international market, aim to reduce emissions where it is least expensive. Within an emissions trading scheme (ETS), offset credits or allowances can be traded among the participants. In contrast, DOPs are usually understood as instruments for countries with mitigation targets to stimulate domestic emission reduction opportunities and technological innovation in sectors that are not used for compliance purposes. What initially started as voluntary bottom-up initiatives from project developers and non-governmental organizations (NGOs) is today increasingly seen as a private sector mechanism for governments to incentivize reductions from emission sources neglected by existing market mechanisms (Peters-Stanley 2012). In a DOP, project developers reduce or remove GHG emissions for which they receive – in many cases tradable – credits. Once the reductions or removals are certified and verified by an independent quality standard or a domestic offset scheme they may be purchased by domestic entities wishing to offset their emissions.

While some definitions refer to domestic offsets as projects to “reduce emissions of CO₂ equivalent (CO₂ eq) in the non-ETS sectors and trade these as CO₂ credits on the ETS market” (Van Der Gaast et al. 2013), this paper explicitly understands these as schemes intended to contribute to greenhouse gas mitigation in the host country itself. Voluntary domestic offsetting, in particular, refers to carbon credits that are sold on the voluntary market of the host country and are not used for the buyers' compliance purposes. This market is driven by a desire of companies or individuals to make voluntary commitments to reduce their environmental impact. This study will, however, also examine different design options for domestic offsetting.

2.2 Obstacles for domestic projects

Domestic offset projects for the voluntary market are confronted with several challenges. In particular, the scope of action for domestic voluntary offset projects in countries with reduction targets is limited by the international, regional and national regulatory frameworks on climate protection. Mitigation commitments from the Kyoto Protocol, the EU ETS, the Effort Sharing Decision and national or subnational compliance mechanisms as well as other types of low-carbon policies enhance the risk of different forms of double counting and make it difficult for project developers to prove additionality. Both additionality and the avoidance of double counting are intended to safeguard the environmental integrity of an offset and guarantee that projects generate emission reductions (or removals) over and above a country's international mitigation commitment. This section provides a theoretic overview of the two concepts of additionality and double counting.

2.2.1 Additionality

Voluntary offsetting is a process of compensating for greenhouse gas emissions from certain (often emission-intensive) activities that cannot be avoided. The party that causes the greenhouse gas emissions by its activities funds measures that lead to a reduction in the amount of greenhouse gases in the atmosphere elsewhere. To achieve net zero GHG emissions, offsetting activities need to ensure that the reduction or removal of GHG is additional – which means that it would not have occurred in absence of the funded activity. Both on the compliance market and under any internationally acknowledged voluntary standard, additionality is an indispensable precondition for a project to be accepted. Additionality is enshrined in articles 3.4, 6.1 and 12.5 of the Kyoto Protocol at the international level (Kyoto Protocol 1998).

Neglecting additionality can undermine the intended net zero and result in a net increase of emissions. Simply put, an additionality test asks the question whether a mitigation activity would have been implemented anyway, in the absence of the willingness to sell or purchase the resulting emission reduction or removal units. If this is the case, the project is not additional to already planned mitigation action and would thus simply replace what would have happened anyway instead of generating extra reductions. Non-additional carbon credits can result in more GHGs in the atmosphere than without the offset, as they allow the buyer of the units to emit more. This is even more problematic in the compliance market with a cap-and-trade scheme than in the voluntary market where actors have no binding emission caps (Kollmuss et al. 2008). Additionality tests not only guarantee buyers who wish to compensate their emissions that their investments are environmentally effective, but also ensures that voluntary action is not used to substitute activities that are mandatory under existing climate or energy policies. As additionality tests are based on counterfactual future projections and arguments, a certain degree of uncertainty may always remain.

Similar to the different types of barriers that offset projects encounter, additionality can be tested on different levels. The most common types of additionality tests include financial, legal, technological and non-financial barriers tests. Testing for financial additionality examines whether the project activity could have been implemented without the financial incentives from the carbon offsets, which can be an assessment dependent on confidential financial information. A project that is financially additional would not be feasible without the revenue generated from selling carbon credits and should not be the economically most attractive option (i.e. a financially more attractive but more emission intensive project would have occurred in a business-as-usual scenario) (Climate Change Authority 2014).

Beyond the economic component and depending on project type and size (and the corresponding standard), additionality must also be proven in legal and regulatory terms, which is considered the least controversial type. Under the legal, or policy, test, a project is considered additional if it is not implemented under any existing public regulation or policy. For compliance, this means that a project that reduces emissions from energy-efficient buildings is not additional if the activity is mandated by building regulations (McFarland 2011). Voluntary projects also need to fulfil the policy test regarding their additionality to compliance or mandatory activities: GHG reductions or removals are not considered additional if they are included in national inventories and counted towards compliance targets (Valatin 2011).

Technological, or common practice, additionality is given if the technologies or practices are not commonly deployed within the geographic area and the sector of the project. As a result, the offset project can help overcome technological barriers to investments and foster innovative low-emission technology (SEI and GHGMI 2011a).

Lastly, additionality may be tested against any other non-financial barrier that the project helps to overcome, including the lack of knowledge or resistance stemming from insufficient precedence ('first-of-its-kind') (CDM 2012).

While proving financial additionality may be sufficient for some projects, others require a combination of different approaches of testing additionality. Which additionality tests are applied depends on the specifications of the standard used as well as the circumstances of the country, the project type (with regard to existing policies, costs, etc.) and the size of the project.

Two types of additionality testing can be distinguished: project-based additionality and performance standards, each with different implications for projects developers.

When it comes to voluntary projects, proving additionality on the project level may turn out to be particularly difficult. Projects in the voluntary market are often small and only generate a limited number of carbon credits and thus revenues. Voluntary carbon standards or domestic offset schemes usually require complex additionality tests at the individual project level before the project can be verified. This may prevent project developers from realising their ideas and can limit opportunities. Not only the high costs and efforts, but also uncertainty related to whether or not additionality testing will be successful pose substantial challenges and exceed the capacities of small initiatives. Moreover, additionality testing at the project level carries a high degree of uncertainty and subjectivity, as projections are based on information that is difficult to confirm (Kollmuss et al. 2008).

For these reasons, voluntary offsetting schemes are increasingly shifting their methodology from project-based testing to performance standards. While project-based additionality assesses projects on a case by case basis, performance standards evaluate the technologies or processes that generate emission reductions or removals. Such performance standards are shifting part of the administrative burden from project developers to a standard-setting entity. Performance standards can be benchmark approaches, establishing a baseline scenario against which all new project proposals are measured, or positive technology lists. The latter provide a list of all technologies and processes that will be considered additional in certain project areas, making additionality testing a transparent and less costly process. The Australian Carbon Farming Initiative (CFI), for example, is already using a positive list, as the case study in chapter 4 will show.

2.2.2 Types of double counting

Double counting refers to a scenario in which a specific GHG emission reduction or removal is inadvertently or intentionally claimed, sold, accounted or monetized twice (VCS 2012; Gold Standard 2015a). Double counting is a risk specific to offsetting and emissions trading that can undermine the environmental integrity of emission reduction (or removal) units.

Despite its importance for market mechanisms, there is no exact and universally acknowledged definition of what constitutes environmental integrity, in particular for the voluntary market. In general terms, environmental integrity refers to whether or not one unit actually corresponds to a real reduction or removal of its equivalent amount of CO₂ eq (Peters-Stanley 2011). To ensure this, emission reduction or removal projects must be additional, permanent, verified and avoid double counting. With regard to double counting, in particular, a carbon unit can be considered environmentally safe if it "achieve[s] a net decrease and/or avoidance of greenhouse gas emissions compared to a predefined and recognised baseline" (Marcu and Alessi 2012). Apart from the actual reduction/avoidance, an additional layer for ensuring environmental integrity is the communicated or perceived reduction/avoidance. We will argue below that double claiming can harm perceived environmental integrity if not communicated transparently.

Double counting can take many different forms and can occur in different actor constellations both in a compliance and a voluntary market setting. Its implications with regard to the environmental integrity of an emission reduction (or removal) also vary depending on whether the reduction is used on the voluntary market or for compliance purposes. Due to the complexity and variety of terminologies, concepts and definitions that can be found in carbon markets literature, this report identifies and explains the different types of double counting that it will consistently use.

Double selling

Double selling occurs where an issued unit is sold more than once to different actors. To assess the implications for a unit's environmental integrity in the case of double selling, it is possible to distinguish between situations in which the units are sold and later used to attain mitigation pledges and those in which they are 'only' sold twice. The transaction of selling units twice does not have any impact on the environmental integrity of the unit itself – irrespective of whether it is sold on the voluntary or the compliance market. However, it can be considered fraud or at least gross negligence, as the seller receives payment for one unit twice (Foucherot et al. 2014).

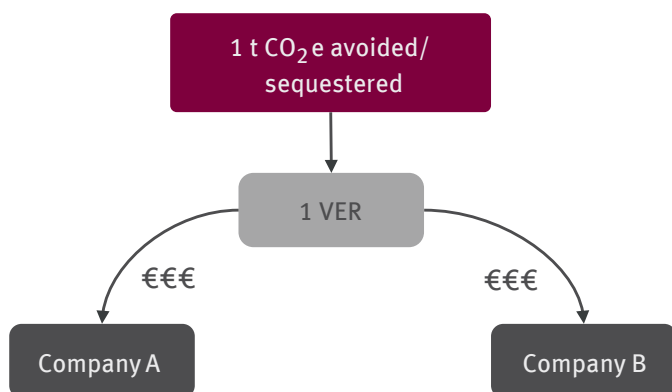


Figure 5: Double selling

The environmental integrity of the units is at stake, however, if following double selling, two or multiple units derived from the same ton of CO₂ equivalent are claimed towards emission reduction commitments – see the discussion on double claiming below for this case.

Double selling is only possible where reduction units are not systematically registered in a centralized inventory. It can therefore easily be avoided by establishing reliable registries that furthermore record the full history of transactions. Most internationally acknowledged standards have provisions in place to prevent double selling from happening. For example, the Gold Standard's "registry procedures and rules to track ownership and retirement provide for transparency in this respect" (Gold Standard 2015b). Other carbon offset standards in the voluntary market, like Plan Vivo and the Verified Carbon Standard (VCS), also use registries that assign unique serial numbers to each certificate to prevent double selling (Merger and Williams 2008).

Double accounting/issuance

Double accounting, or double issuance, refers to a situation in which the same GHG reduction or removal unit is accounted for on multiple occasions or in which more than one unit is issued for the same emissions reduction.

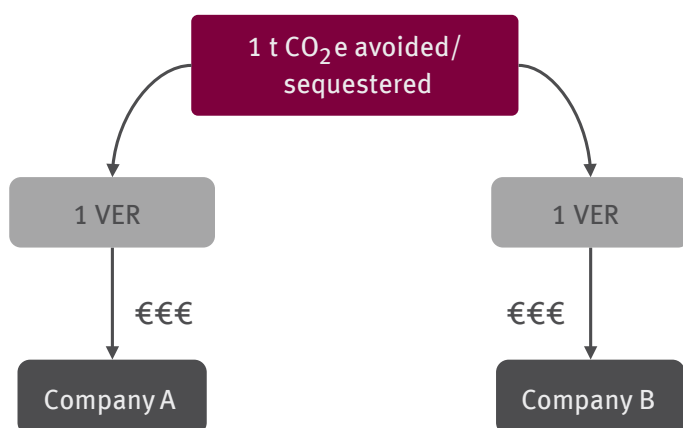


Figure 6: Double issuance

This can happen if a unit is credited twice under two different standards or in two different registries. Another – largely theoretical - case of double issuance could arise if a unit could intentionally or inadvertently be duplicated in a registry, or if a unit is issued to two entities under the same mechanism (Schneider et al. 2014).

According to the definition above, issuing two credits for only one unit reduced or removed impairs the environmental integrity of the units, as one unit does not correspond to one ton of CO₂ eq reduced anymore. As long as the units that have been issued twice are not sold twice and then used to attain mitigation pledges by any of the buyers, the environmental integrity does not have much relevance for the carbon market – however, it is unlikely that issued units are not utilised for reduction claims. Issuing the exact same unit twice deceives potential buyers and can easily undermine environmental integrity if the units are claimed at a later stage – something that can hardly be avoided once the units have been issued.

To avoid double issuance or accounting in the first place, centralized registries are needed and are in place that assign unique serial numbers to each GHG emission reduction unit (Foucherot et al. 2014). Other approaches to address double issuance require project developers to clearly indicate the project location and identify the project owner to avoid double registration of one project. Other schemes make project developers attest that they have full ownership of the emission reduction and do not pursue issuance under any other scheme or standard (Schneider et al. 2014). For example, the Gold Standard requires registry account holder to confirm that they have “not sold, transferred, assigned, licensed, disposed of, granted or otherwise created any interest or encumbrance [...] in the Units or the underlying Environmental Benefits corresponding to such Units” (Gold Standard 2015b). The VCS has similar provisions in place, whereas CDM does not make use of comparable procedures (Schneider et al. 2014). Standards like the Woodland Carbon Code make project developers declare that they have not registered their emission reductions elsewhere (West 2015).

Double claiming

Double claiming occurs where two entities ‘claim’ the environmental benefit of the exact same reduction or removal unit. Depending on the constellation of actors from the voluntary and the compliance market, double claiming can have different implications for environmental integrity. Actors can be national governments, companies, individuals or other institutions.

Scenario involving actors without commitments (voluntary action case)

Double claiming can occur in a situation involving two entities that engage in voluntary offsetting of GHG emissions. For example, reduction certificates can be used by a company to voluntarily demonstrate the carbon neutrality of its production process and products. The buyer of the product may also claim the carbon neutrality of the product for himself.

As both the producer and the purchaser do not have reduction obligations, the emission reduction or removal is not counted towards any binding mitigation pledge. In this situation, environmental integrity is not impaired, as both claims refer to the same unit of GHG emissions reduced, as long as the emission reductions from voluntary domestic projects are not accounted for in the national GHG inventory (see ‘mixed’ scenario for this case). This view is widely shared by standards like the Gold Standard, considering both claims to be true “because the offset is used against a single emission only” (Gold Standard 2015a).

Scenario involving actors with and without commitments (‘mixed’ case)

In a scenario that involves one party that engages in voluntary offsetting, the implications for environmental integrity are not as clearcut. In this scenario, double claiming can occur where units from a voluntary project in an Annex B country are (1) used by a company to voluntarily offset parts of its GHG emissions, but at the same time, the reduction is (2) accounted for in the national inventory and claimed by the host government towards their international mitigation commitment (VCS 2012). As almost all emission sources appear in the national GHG inventories of Annex B countries, this is a very frequent case.³

³ At the same time, voluntary DOPs tend to be small, and some may therefore not appear on the radar of the national inventory (Ivleva et al. 2015).

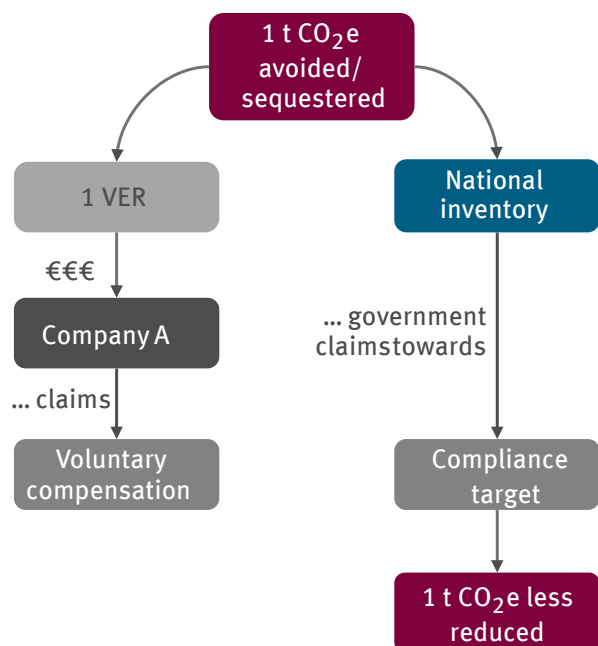


Figure 7: Double claiming in a ‘mixed’ scenario

In this scenario a voluntary emission reduction helps the host country to achieve its reduction target. The scenario does not lead to a net increase in emissions: as the company’s voluntary activity is not counted towards any pledge, one t CO₂ eq reduced only appears once in the national inventory – although two claims are made on the back of one unit. The Verified Carbon Standard argues that this situation does not undermine environmental integrity, as “there is no potential whatsoever for [the unit] to be used in respect of a second country’s emission reduction target” (VCS 2012).⁴ The United Kingdom’s (UK) Woodland Carbon Code also takes this approach, noting that “the ‘environmental integrity’ of each credit is sound, if they are only accounted for within one national inventory” (West 2015).

But such a double claim could undermine the credibility of the voluntary market and is ‘unfair’ to buyers who are unaware that they are indirectly funding the government’s emission reduction measures (SEI and GHGMI 2011a), compromising perceived environmental integrity (as defined above). Buyers of voluntary credits must therefore be aware of the fact that they might be indirectly “sponsoring” or reducing action that the government would have to take, making the case for adequate communication measures (Ivleva et al. 2015). For this reason, it is important that the double claim is communicated transparently. This can also help avoid the potential negative effect it may have on a company’s reputation, since offsetting is sometimes confronted with the charge of ‘greenwashing’.

This debate also revolves around the framing of GHG avoidance and removals. There is no harm in counting emission reductions towards the national target that result from general investment in environmental conservation. But as soon as these reductions are used for offsetting, this can be harmful for environmental integrity: The purchaser of the credit sponsors a reduction that would have occurred anyway. This is also in line with ICROA’s (International Carbon Reduction and Offset Alliance) code of best practice according to which members may sell units from DOPs in Annex B countries but not use them against a carbon neutrality claim.

Secondly, it substitutes and thus reduces emission reduction efforts that the host country would have to take without the voluntary project, which counteracts the idea of voluntary markets incentivising *additional* GHG reduction measures. If the voluntary reduction was not accounted for in the national inventory, more greenhouse gases would be compensated overall, even though not reflected in the national target. In case of DOP schemes that are financed and administered by the national government this might not be the case, as administrative bodies can make sure that the voluntary projects are still additional to any other action that would have taken place. Government-supported schemes can therefore even contribute to increased ambition.

⁴ However, to avoid double monetization, VCS does not allow projects in Annex B countries with emission reduction targets unless there is a corresponding cancellation of AAUs

To a certain extent, this question also depends on the definition of voluntary carbon offsetting and its objectives: Some experts argue that bottom-up offsetting in support of government action is even positive, as it might push the government beyond the initial reduction target (Ivleva et al. 2015).

Double claiming can set in motion double monetisation if voluntary reductions or removals that show up in the national inventory free up AAUs (assigned amount unit) – and this can undermine environmental integrity, as explained below. But as outlined, if the GHG reduction physically occurs and there is no double selling, double issuance or double monetisation, the double claim does not pose a problem if communicated transparently, as even perceived environmental integrity is safeguarded. Given these conditions, problematizing and working to double claiming may overcomplicate matters and thus impede action in the voluntary market,

Avoiding double claiming in a scenario involving actors with and without commitments (mixed case)

In order to reliably exclude the risk of double claiming in a ‘mixed’ scenario and prevent voluntary offsetting from replacing government measures, the easiest way would be to exclude any project type that is accounted for in the national GHG inventory. However, as the next chapter will show, this barely leaves any project types in most Annex B countries.

Another option is that Annex B countries cancel AAUs of an amount equivalent to the Verified Emission Reductions (VERs) created through voluntary projects (SEI and GHGMI 2011a). This way, the government may claim the voluntary reduction but at the same time, as the overall number of allowed amount units available for the country is reduced, the reduction does not contribute to reaching official targets. This is equivalent to raising the ambition of the compliance target, but the reduction of allowed emissions is counterbalanced by the voluntary credits (Foucherot et al. 2014). At present, however, there is no Annex B country with such regulation for AAU cancellation. Implementing AAU cancellation in exchange for VERs in Annex B countries is considered difficult, as it would imply an indirect endorsement of VERs by the government. In view of the multitude of certification standards with rules that are more or less strict, AAU cancellation could be difficult to put into practice, as governments need to make sure that project standards are as rigorous as in the compliance market in order not to undermine the credibility of the reductions. As long as there are no coherent and reliable quality requirements for all projects, this is a difficult task. In addition, the transaction costs of AAU cancellation are considered very high, making it less effective in view of the often small volume of voluntary units.

Double monetisation

A fourth form of double counting is double monetisation, which occurs if a GHG emission reduction (or removal) is monetized once as a GHG allowance (e.g. an AAU) and a second time as a GHG credit (e.g. a VER) (VCS 2012).

Double monetisation can only occur in project sectors that are listed in the national GHG inventory and impairs the environmental integrity of an emission reduction:

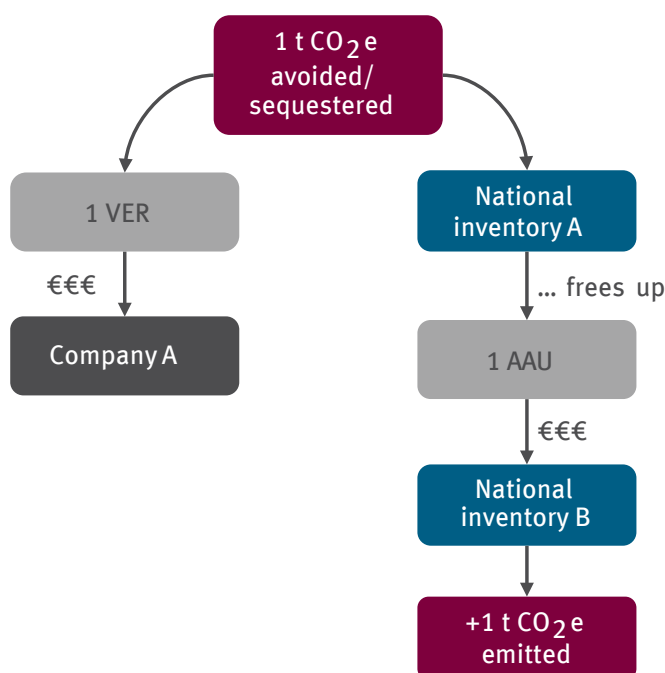


Figure 8: Double monetisation

Double monetisation can occur if credits generated through a voluntary project unintentionally ‘liberate’ AAUs in the project host country. This situation can happen if a voluntary domestic project issues credits that are bought and retired by, for example, a company willing to voluntarily offset parts of its GHG emissions. If these emission reductions take place in a capped sector and/or are accounted for in the national GHG inventory, they also contribute to the national mitigation target. The project host country may, as a result of the reduction project, need to undertake less reduction or removal efforts to achieve this target. As a consequence, it may have surplus AAUs, ‘freed up’ by the voluntary reduction, that it chooses to sell to another country with compliance targets. In this case, the units are double monetized both – rather indirectly – as AAUs and as voluntary units such as VERs (VCS 2012; Peters-Stanley 2011).

As a consequence, in both cases the amount of GHG emissions that are compensated by the credit may be additionally emitted by the party holding the AAUs, allowing for a net increase in emissions (1 t CO₂ eq reduced by the project + 1 t CO₂ eq emitted by VER buyer + 1 t CO₂ eq emitted by AAU buyer/holder = 1 t CO₂ eq additionally emitted). Clearly, the emission reduction’s environmental integrity is impaired in this case. For the voluntary market this means that credits generated through domestic projects in sectors covered by the national inventory may only be traded if the national government cancels the equivalent amount of AAUs or explicitly commits to not selling them (VCS 2012; Foucherot et al. 2014). The difficulties of AAU cancellation in exchange for credits generated in the voluntary market as discussed in the previous section on double claiming also apply here.

In addition, there are few cases in which voluntary domestic offset projects are not captured on the government level and do not appear in the national inventory although they are generated in sectors with reporting obligations. This can be the case with very small projects that have a small volume of emission reduction or GHG sequestration (Ivleva et al. 2015). As activities are not reflected in the inventory and not counted against the national target, there is no double monetisation in these cases. This is, however, not an actual solution to the problem but rather a workaround, as these activities would theoretically have to be accounted for on the national level. This form of double counting is specific to a constellation in which a voluntary and a compliance scheme coexist and resembles the case of double claiming in a ‘mixed’ scenario. The difference of these examples of double monetisation and double claiming lies in the fact that double claiming itself does not result in a net increase of emissions as long as no AAUs are sold to another Annex B country. Therefore, in contrast to double claiming, double monetisation unequivocally raises issues of environmental integrity of the units and needs to be avoided in any case.

Summary

Recapitulating the different forms of double counting and their implications for environmental integrity, the following distinction can be made with regard to the voluntary carbon market: (1) Those that can be resolved more or less easily and (2) those that pose more serious difficulties and require more in-depth analysis.

- (1) Double selling and double issuance or accounting do not necessarily cause environmental integrity issues. Both forms are related to accounting and registration issues that can – in theory – be easily resolved by introducing centralised registries with a full record of the transaction history. Therefore, these two forms of double counting have less relevance with regard to how they relate to the regulatory framework conditions that define the scope for voluntary domestic projects. They will thus not be examined in detail in the following chapter.
- (2) Double claiming and double monetisation, if they emerge in scenarios that involve an entity engaged in voluntary offsetting and a national government of an Annex B country, are more problematic. If both a voluntary actor and the Annex B country where the emission reduction project takes place claim the reduction, it can be considered environmentally integral as long as it is communicated transparently. Double monetisation, in contrast, causes a net increase in emissions and impairs environmental integrity. To safeguard the credibility of the voluntary carbon market, it needs to be avoided. The best solution towards preventing both double claiming and double monetisation would be the systematic cancellation of AAUs for each credit issued by a voluntary project. To what extent the risks of double claiming and monetisation are relevant for voluntary domestic schemes and arise in the different regulatory contexts will be analysed in the next chapter.

Table 1: Summary of types of double counting

| Type of double counting | Scenario(s) | Implications for environmental integrity | Solutions to avoid double counting |
|----------------------------|--|---|---|
| Double selling | One unit of CO ₂ eq is sold more than once to different actors. | Environmental integrity unimpaired as long as the units derived from the same ton of CO ₂ equivalent are not claimed towards emission reduction commitments. Must nevertheless be avoided because it is fraud. | Establish reliable registries that record the full history of transactions. |
| Double issuance | One unit is credited twice under two different standards or in two different registries, or duplicated in a registry and/or issued twice (e.g. to two different entities) on the back of one actual emission reduction unit. | Environmental integrity of the unit is impaired, as one unit does not correspond to one ton of CO ₂ eq reduced anymore. | Project developers should attest that they do not seek credit issuance under another standard / scheme. Registries need to assign unique serial numbers to each GHG emission reduction unit and that indicates the exact project location. |
| Double claiming | One unit is used by a company to voluntarily offset parts of its GHG emissions, and this unit is accounted for in the national inventory and claimed by the host government towards their national target. | The voluntary reduction helps the government to achieve its reduction target, which may not be desirable as it runs counter the notion of ‘voluntary’ action. As long as this is communicated transparently, it does not undermine environmental integrity. | Cancellation of AAU for each voluntary unit issued. Transparent communication. |
| Double monetisation | One unit from voluntary domestic project is used by a company in an Annex B country to offset its emissions, ‘freeing up’ AAUs that the government sells to another Annex B country. | Environmental integrity is impaired, as this leads to a net increase in emissions. Exceptions: 1) LULUCF reductions larger than capped amount country can count towards its target. 2) Emission reductions or removals not captured in the national inventory. | Cancellation of AAU for each voluntary unit issued or commitment not to sell excess AAUs. |

This table only summarises the scenarios relevant for the voluntary domestic market.

Following this analysis of double counting implications for environmental integrity, the following decision tree can help check whether environmental integrity of voluntary emission reductions is at stake or not.

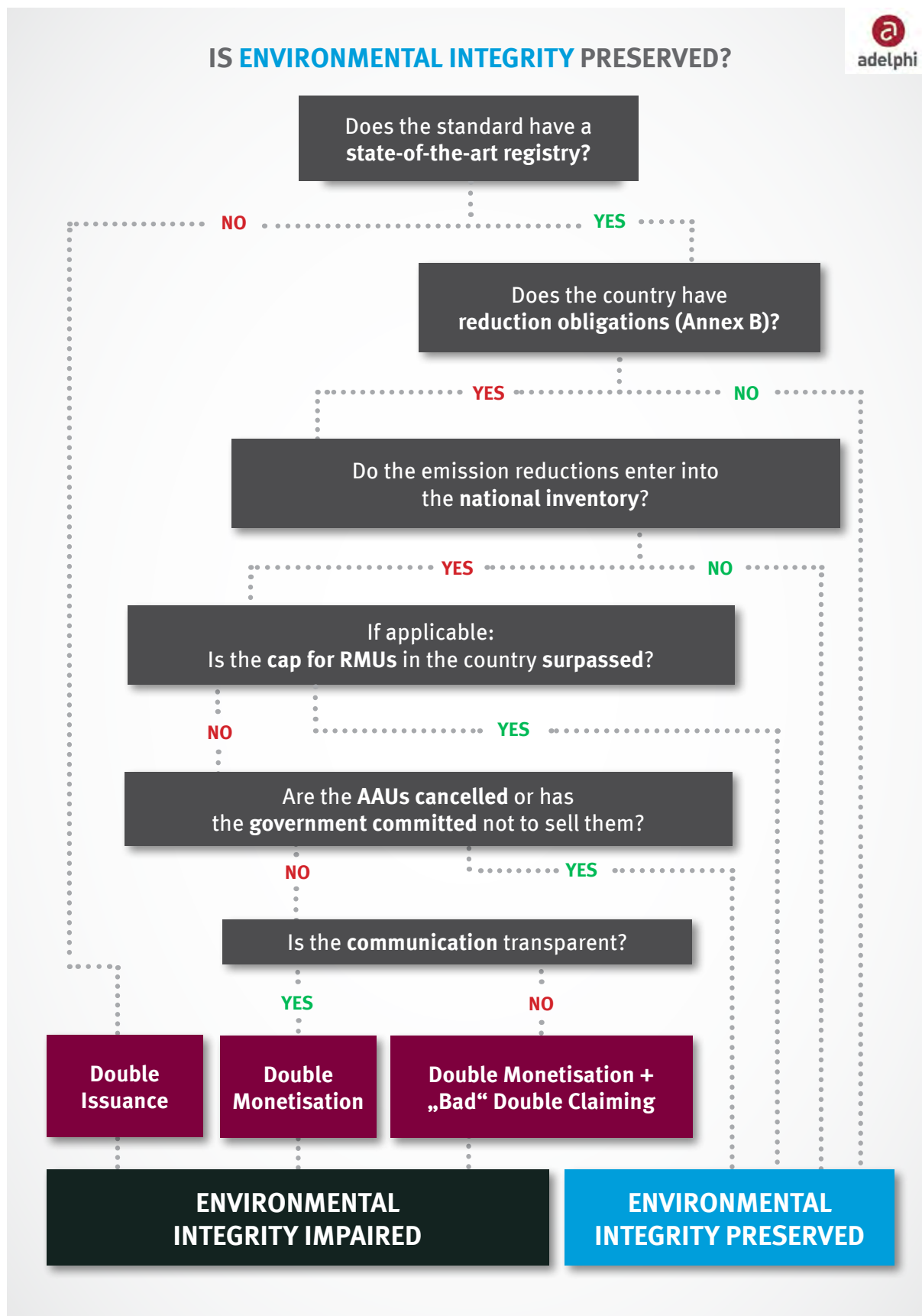


Figure 9: Overview: Does double counting undermine environmental integrity?

3 Policy background: framework conditions for domestic projects

International, regional and national regulations on climate protection limit the scope of action for domestic voluntary offset projects in Annex I countries. Binding mitigation commitments for both national governments and companies prescribed in the Kyoto Protocol, the EU ETS and national or subnational compliance mechanisms enhance the risk of different forms of double counting and make it difficult for project developers to prove additionality. To what extent voluntary domestic projects are affected by and what are the main barriers resulting from these regulations will be examined in this section. Besides regulations on the European and the international level, including the Kyoto Protocol and the Paris Agreement, it will specifically look at the regulatory framework in Germany.

3.1 International framework: Kyoto Protocol

3.1.1 Background: Regulative conditions

The Kyoto Protocol is the principal international regulation for the reduction of greenhouse gas emissions and a building block of the global climate regime. With its entry into force in 2005, the Protocol under the UNFCCC (United Nations Framework Convention on Climate Change) commits only Annex B Parties (38 developed countries and economies in transition) to binding emission reduction targets against 1990 levels of emissions⁵ and is now in its second commitment period from 2013 to 2020, known as the Doha Amendments. The Paris Agreement, in contrast, commits all Parties to nationally determined contributions (NDCs) and a pathway to climate protection from 2020 onwards. While the first commitment period (2008-2012) of the Kyoto Protocol had the objective of reducing overall emissions by an average of 5 percent, the second period envisages a more ambitious reduction of 18 percent compared to 1990 levels by 2020. The European Union has committed to a 20 percent reduction by 2020. However, the United States never ratified the Protocol and Canada announced its withdrawal from the Kyoto Protocol in 2011 (UNFCCC 2014a). Several countries like Japan, Russia and New Zealand have not committed to new targets under the Doha Amendment and due to the slow ratification process the Amendment has not yet officially entered into force. Coverage of global GHG emissions in the second commitment period thus barely amounts to 15 percent (BMUB 2015a). All countries that will be examined in the case studies in chapter 2, though, have committed to ratifying and participating in the second commitment period⁶ and will thus still be impacted by the Kyoto framework during the years remaining until 2020. Even if the Amendment does not enter into force the European Union has adjusted its targets to the commitments of the second period.

Countries with binding reduction targets under the Kyoto Protocol (Annex B countries) are assigned an emissions budget in the form of ‘assigned amount units’ (AAUs). The quantified reduction targets are primarily to be achieved with domestic action, constituting a “significant element of the effort” (UNFCCC 2006), including measures such as energy efficiency, market instruments, carbon or energy taxes, legal regulations, voluntary commitments or research and development (UNFCCC 2012). Domestic offset projects also fall within the scope of domestic action, as the carbon benefit stays within the host country. However, voluntary domestic projects are ineligible for compliance under the Kyoto Protocol.

To facilitate compliance, countries are not obliged to achieve their obligations with domestic action only. The Kyoto Protocol includes three flexibility mechanisms that increase Parties’ scope of action. Emissions trading under a cap and trade approach, established under article 17, enables countries to trade their AAUs among each other, thereby raising or lowering the level of allowed emissions available to them. Moreover, and most important for its relation with domestic offset projects, with Joint Implementation and the Clean Development Mechanism the KP established two project-based mechanisms for offsetting carbon emissions. Whereas CDM projects are hosted by non-Annex I Parties, JI projects may be implemented in Annex B countries, making it a similar mechanism to domestic offset projects (UNFCCC 2008).

⁵ The base year is not the same for all countries, in particular Bulgaria, Hungary, Poland, Romania and Slovenia.

⁶ The amendment has not yet entered into force and it is uncertain if it will at all because the received number of ‘instruments of acceptance’ by the Parties of the Kyoto protocol still falls far short of the 144 required.

As defined in article 6 of the Kyoto Protocol, Annex B countries can finance or implement emission reduction or removal projects in another Annex B country for which they receive emission reduction units (ERUs) that can be applied to their reduction target. The mechanism aims at promoting technology transfer and foreign direct investment in innovative technologies and at reducing or removing emissions where it is most cost-effective. Projects must be additional and need to be approved by the host country and the investor country, including a formal agreement for the transfer of ERUs.

There are two tracks of participation under JI. To be eligible for JI projects, Annex B countries have to meet certain requirements regarding national registries for tracking the units, have AAUs calculated and be a Party to the Kyoto Protocol (minimal requirements necessary for Track 2). Countries with enhanced national systems for calculating emissions or removals, accurate accounting of assigned amount and submission of information and that have submitted their most recent emissions inventory are also eligible to participate under Track 1 of JI. This enables host countries to approve the project and issue the credits themselves, while Track 2 requires approval of the Joint Implementation Supervisory Committee (JISC). About 97 percent of all JI credits were issued under Track 1 (Carbon Market Watch 2013). In exchange for the transfer of the credits, the host country has to cancel the equivalent amount of AAUs from its registry, effectively preventing double monetization and thus ensuring the environmental integrity of the mechanism and the reductions.⁷

LULUCF under the Kyoto Protocol

The reduction targets under the Kyoto Protocol apply to total greenhouse gas emissions from the energy, industrial processes, solvent and other product use, agriculture and waste sectors (see Figure 10). Although the LULUCF sector itself is not included in Annex A to the Protocol, which lists all GHG emission sources to be covered, Parties are required to account for specific LULUCF activities as defined in Article 3 (paragraphs 3 and 4). During the first commitment period, the reporting of “direct, human-induced, afforestation, reforestation and deforestation activities” under article 3.3 was mandatory for all Parties. In addition, Parties could voluntarily account for “forest land management, cropland management, grazing land management and/or revegetation” under article 3.4, which was specified in 2001 (UNFCCC 2014b). In the second commitment period, forest management was added to the accounting obligation, whereas wetland drainage and rewetting may be accounted for on a voluntary basis. Any other LULUCF activities under article 3.4 may also be accounted for on a voluntary basis.

Double counting

In order to guarantee their environmental and overall integrity, carbon reductions need to be traceable so as to ensure that each unit is registered, certified, sold, accounted and monetized only once. Under the Kyoto Protocol double counting can occur both within the Kyoto mechanisms and in interaction with the voluntary carbon market. In a pure compliance setting, double counting is considered a risk if two Annex B countries are involved in a carbon transaction, as is the case with JI: unless the host country cancels AAUs of an amount equivalent to the carbon credits it sold to another Annex B country, the reduction would be double claimed. To avoid this risk, credits issued as Emission Reduction Units under JI have to be converted from an equivalent amount of the host country’s AAUs.

While backing up ERUs with AAUs is a good way to avoid double counting of JI credits, there have been substantial concerns about environmental integrity of the mechanism during the first commitment period. Almost 90 percent of JI Track 1 credits were implemented in Russia and Ukraine. After the Soviet Union imploded, economic activities declined in comparison to the base year 1990 – with the result that Russia and Ukraine were assigned a much higher number of AAUs than their actual emissions, leading to a large surplus of AAUs that were not exhausted. If ERUs from these countries, backed up by surplus AAUs, are transferred to other Annex B countries and counted towards their targets, the transaction can result in a net increase of emissions. The environmental integrity of ERUs shadowed by “hot air” AAUs is therefore questionable (BMUB 2010).

Rules to avoid double counting under the CDM are less rigid, as one of the Parties involved is not subject to a binding reduction target.

⁷ However, as the second commitment period of the Kyoto Protocol has not yet entered into force, JI projects are currently not possible.

3.1.2 Implications for domestic offset projects

Additionality

In light of the Kyoto obligations, additionality tests not only need to examine whether the incentives (monetary or other) from offsetting were the decisive factor for a mitigation activity's implementation. In order to safeguard the environmental integrity of the carbon offset for potential buyers it has to be ensured that a project is truly additional.

In the case of voluntary domestic markets additionality and double claiming are a question of environment integrity. It is important to differentiate between the additionality of the activity and the additionality of the reduction: While an activity may well be additional even if it is achieved in a sector that is counted towards a compliance target, the resulting reduction may not be additional if it substitutes government action. The latter must be addressed by proper rules to avoid double counting.

Applying the four types of additionality tests identified above, the test of non-financial barriers and the technological test remain unaffected by the circumstances arising from the coexistence of multiple regulative frameworks. Financial and legal additionality are, in a sense, more complex. Financial additionality, in turn, has its own challenges. Emission reductions or removals can be costlier than the carbon prices the corresponding certificates can achieve. Therefore, the certificates sometimes only co-finance the project costs. In practice, it can be challenging to prove additionality, i.e. that the corresponding revenue pushes a project to financial viability where other sources of finance exist. Regarding legal additionality, additionality tests prescribed by a standard are evaluated at the project level. Beyond the project level, 'legal additionality' is a question of avoiding double counting.

Double counting in the voluntary market constrained by the Kyoto Protocol

For the voluntary market, there are no universal provisions to avoid double counting. For voluntary offsets in countries with obligations under the Kyoto Protocol, different issues can arise. While double selling and double issuance of credits under two standards are problematic, they are analytically less relevant. Both forms can easily be resolved by keeping central registries and are not subject to any specific conditions resulting from the Kyoto Protocol framework that need to be considered (Foucherot et al. 2014).

Double claiming: For certificates generated from JI projects AAUs are cancelled from the national budget to avoid double claiming. Certificates generated through voluntary domestic projects usually affect the national inventory and AAU budget in a similar way. Sectors that are not accounted for in the national inventory for Kyoto compliance are theoretically not at risk of double claiming, as they are not on the 'radar' of the state – however, with the exception of certain LULUCF activities, there are hardly any sectors left that are not yet covered by Kyoto. As a consequence, in practice, Annex B countries with voluntary domestic initiatives need to make sure that for every issued voluntary certificate an AAU is cancelled in order to prevent it from being claimed twice. If AAUs are cancelled, the government may count the voluntary reduction towards the national target, as the net emissions level would not be impacted and double claiming would not occur.

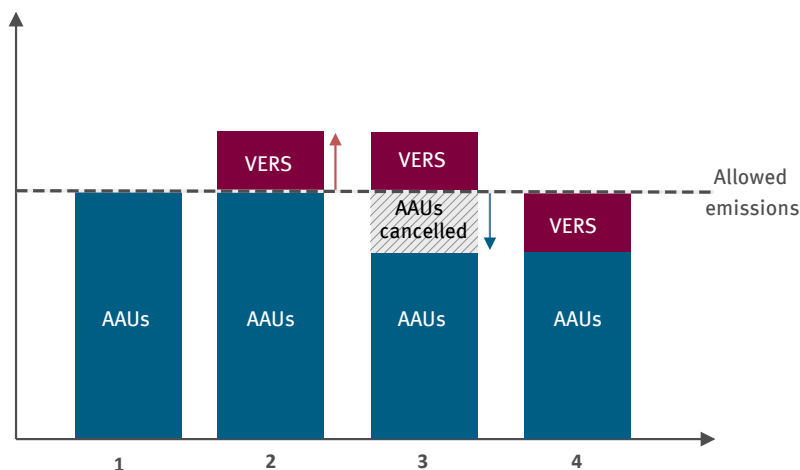


Figure 10: Cancellation of AAUs when issuing VERs

Double monetisation: For credits generated within Kyoto sectors, which include basically all sectors with the exception of some LULUCF activities, opinions vary as to whether or not double monetisation is a problem, as long as the credits are not traded internationally. However, voluntary projects in sectors covered by the Kyoto Protocol bear the risk of unintentionally ‘liberating’ AAUs and thus leading to double monetisation. Cancelling AAUs for each credit issued on the voluntary market would also counteract this risk of double monetisation. To avoid the second type of double monetisation, arising from the sale of voluntary credits outside the host country without a corresponding cancellation of AAUs, voluntary standards like VCS do not allow credits to be transferred out of the host country as long as AAUs are not retired.

While double claiming only implies that a country counts the reduction against its national target, with debatable implications for environmental integrity, double monetisation means that surplus AAUs are sold and enable another country to increase its emissions – thereby increasing the global emissions ceiling instead of offsetting. The latter is an issue for environmental integrity and should by all means be avoided.

AAU cancellation: To avoid both double claiming and double monetisation, AAU cancellation for projects in Kyoto sectors would be a good option for Annex B countries. In practice, however, Annex B countries refrained from cancelling AAUs for all VERs created so far. One of the main problems is the lack of a comprehensive, universal quality standard on the voluntary market, as governments of Annex B countries need to make sure that the voluntary credits for which they retire AAUs are additional and environmentally sound. As long as different standards with different levels of quality coexist, it would require enormous efforts from the government to reconcile these with internationally acknowledged regulations like those of JI, for example. This substantially limits the scope of action for voluntary domestic projects, as most verification standards that are internationally acknowledged do not accept projects from Annex B countries that do not retire AAUs.

How voluntary standards deal with it: Most verification standards in the voluntary carbon markets suggest cancelling AAUs or avoiding projects in Annex I countries in the first place. The VCS, for example, requires proof that AAUs have been cancelled from the national registry for a project to be eligible (VCS 2012).

Table 2: How quality standards deal with double monetisation

| Standard | Rules to avoid double monetisation |
|---------------|--|
| Gold Standard | Issuance of VERs in countries with an emissions cap (Annex B) requires the permanent cancellation of AAUs in lieu of Gold Standard VERs (Gold Standard 2015) |
| VCS | Projects in countries that assume emission reduction targets under the second Kyoto commitment period are not eligible under the VCS Program (unless there is corresponding cancellation of AAUs) (VCS 2012) |

LULUCF accounting regulations

During the first and the second commitment period, accounting of different LULUCF activities was mandatory, while other could be voluntarily included. Any activity voluntarily selected by an Annex I Party in the first commitment period would automatically become mandatory for this Party in the second commitment period.

Table 3: Mandatory and voluntary accounting of LULUCF activities under the Kyoto Protocol

| LULUCF activities | Article | First commitment period (CP1) | Second commitment period (CP2) |
|--------------------------------|---------|-------------------------------|--------------------------------|
| Afforestation | 3.3 | Mandatory | Mandatory |
| Deforestation | 3.3 | Mandatory | Mandatory |
| Reforestation | 3.3 | Mandatory | Mandatory |
| Forest management | 3.4 | Voluntary | Mandatory |
| Cropland management | 3.4 | Voluntary | Voluntary |
| Grazing land management | 3.4 | Voluntary | Voluntary |
| Revegetation | 3.4 | Voluntary | Voluntary |
| Wetland drainage and rewetting | 3.4 | (not included) | Voluntary |

The Kyoto Protocol has an activity-based approach to LULUCF accounting, in contrast to the Convention's land-based approach. Moreover, it establishes three different basic accounting rules for the different LULUCF activities that are complemented by additional rules:

- ▶ **Grossnet accounting:** All LULUCF emissions and removals (net) during the commitment period are accounted for (provided that they occur on land that is subject to the activity since 1990), but LU-LUCF is not included in the baseline. Gross-net accounting thus helps achieve targets even if removals are decreasing over time.
- ▶ **Net-net accounting:** Emissions and removals (net) from each year of the commitment period are compared to emissions and removals from the base year (usually 1990) to determine the net change. Effectively, net-net accounting means indirect and natural effects are less likely to enter into the accounts.
- ▶ **Reference level accounting:** Similar to net-net accounting, but instead of a base year, a GHG reference level is established.

Throughout the first and the second commitment period, gross-net accounting was applied to afforestation, deforestation and reforestation, while cropland, grazing land management, revegetation, wetland drainage & rewetting (only CP2) were accounted for according to the net-net rule.

Forest management accounting is slightly more complex: during the first commitment period, activities from forest management fell under gross-net accounting, which changed to reference level accounting in the second period. In addition, there are several complementary rules, including a cap to limit the amount of RMUs that Parties may generate from forest management activities. At present, the cap is at 3.5 percent of a Party's base year emissions without LULUCF, while individually negotiated caps that referred to total emissions and removals from forest management were applied in the first commitment period (Canaveira 2013). This implies that any removals exceeding the cap of 3.5 percent must be reported under the Convention, but may not be transformed into Removal Units (RMUs) under the Kyoto Protocol.

3.2 The European framework

3.2.1 Background: regulative conditions

The European Union has set itself and committed to ambitious targets for the reduction of greenhouse gas emissions up to 2050. The overall targets of reducing emissions by 20 percent until 2020 and by 40 percent compared to 1990 until 2030 are to be achieved through a wide range of financial and regulatory measures. The two main areas of reduction activities are the EU emissions trading system and the Effort Sharing Decision (ESD).

The EU ETS

The EU's emissions trading system, launched in 2005, is the key tool of EU climate policy and the largest emissions trading scheme worldwide. Under its cap-and-trade approach an absolute emissions limit (cap), broken down into national emission caps, determines the total amount of GHG emissions that may be emitted by all participants of the scheme. A limited number of tradable emission permits are issued and allocated to the participants. This should be done in a way that scarcity is created in order for setting incentives for emission reduction where it is most cost-effective. As the cap is reduced over time, the reduction target becomes more ambitious. The issued permits are called EU Allowances (EUA) and one EUA is equivalent to one Kyoto AAU and one t CO₂ eq.

Participation in the EU ETS is mandatory for corporations in a certain sector and of a certain size. Greenhouse gases and sectors covered by the scheme include CO₂ from power plants, a wide range of energy-intensive industry sectors and (domestic) commercial aviation, N₂O from production of several substances and PFCs from aluminium production. They make up for around 45 percent of total GHG emissions of the EU and are considered easiest to be "measured, reported and verified with a high level of accuracy" (European Commission 2016a).

The scheme is currently in its third trading period, which runs from January 2013 to December 2020, with a cap representing GHG emission reductions of 21 percent compared to 2005 levels. Similar to the Kyoto Protocol, the EU ETS permits flexibility in attaining the emission reduction targets.

As the Kyoto Protocol entered into force, the EU agreed to allow the use of Kyoto flexibility instruments for compliance under the scheme to a certain extent with the 2004 ‘Linking Directive’ (2004/101/EC).

Effort Sharing Decision

A second important instrument of EU climate policy is the Effort Sharing Decision (ESD) that complements efforts from the EU ETS. The ESD, introduced in 2009, establishes binding annual, national GHG emission targets within the European Union, according to which some EU Member States need to reduce, while others may increase their emissions for the period 2013 to 2020. Each Member State receives a fixed amount of annual emission allocations (AEAs) that are assigned in accordance with the overall cap on non-ETS emissions. The overall goal of the ESD is a reduction of emissions from non-ETS sectors, which account for around 55 percent of all EU emissions, by 10 percent (European Commission 2016b; CDC Climat Research et al. 2015). These sectors include transport, buildings, agriculture and waste, but explicitly exclude LULUCF. In contrast to the ETS, under which private entities have compliance obligations, primary responsibility for the ESD targets rests with the governments of the Member States rather than companies. This gives Member States more flexibility to develop individual national policies to ensure their compliance with the ESD target.

Member States are allowed to use flexibility instruments to achieve their emission targets, including trading, banking or borrowing between states and over years. The principle of flexibility under the ESD aims at ensuring environmental integrity, effective compliance and addressing different capacities. Member States may accordingly carry over a fixed amount of unused AEAs to the following year or borrow up to 5 percent of AEAs from subsequent years. Trading of surplus AEAs from one Member State to another is another flexibility option under the current ESD regulations. Moreover, states can make use of Kyoto units and purchase CERs or ERUs equivalent to up to 3 percent of non-ETS emissions each year (Decision No 406/2009/EC; Carbon Market Watch 2015). Credits should, however, only be supplemental to and not replace domestic action. Finally, with the addition of Article 24a in the Directive 2009/29/EC in 2009, Member States may also use credits from domestic offset schemes towards their emission reduction target under the ESD.

The new proposal for the Effort Sharing Regulation in the period from 2021 to 2030, released in July 2016, includes two new types of flexibilities. First, Member States may use a limited amount of allowances from the EU ETS to achieve their national target in the non-ETS sectors. And second, domestic reductions or removals from the landuse sector (including afforested land, managed grassland and managed cropland) may be used for national targets up to a fixed country-specific limit (European Commission 2016). However, the proposal does not contain a European Project Mechanism that could provide a direct entry point for domestic offset projects.

LULUCF in the European framework

At present, LULUCF is a net sink within the European Union, but removals are expected to gradually decrease under current climate policies (European Commission 2015). On the European level, there is a reporting obligation of the LULUCF sector by Parties included in Annex I to the Convention but LULUCF is currently not counted towards the EU’s 20 percent reduction target to be achieved via the EU ETS and the Effort Sharing Decision. For the period until 2021, reporting of emissions and removals related to LULUCF activities is regulated under Decision 529/2013/EU, which is essentially in line with the EU’s obligations under the Kyoto Protocol (Climate Action Network 2016).

According to this decision, Member States are required to prepare accounts for emissions and removals resulting from afforestation, reforestation, deforestation and forest management. In addition, between 2016 and 2018, they shall report emissions and removals from cropland management and grazing land management, laying the basis for mandatory accounting of the two categories from 2021 onwards (529/2013/EU).

In 2014, the European Council decided to include LULUCF in the 2030 EU climate and energy framework with the result that emissions and removals from LULUCF activities will contribute to the target of reducing GHG emissions by at least 40 percent. The 2030 communication proposed three different models that are currently being discussed, including: (1) a separate LULUCF pillar with a separate sector policy approach, (2) a land-use sector pillar that includes LULUCF and agriculture alike, and (3) including LULUCF into the Effort Sharing Decision.

The proposal of the European Commission from July 2016 for the inclusion of GHG emissions and removals from LULUCF into the 2030 climate and energy framework does not reflect one of the three models.

It does, however, propose an accounting framework for LULUCF during the period from 2021 to 2030 with slight changes to the regulations under Decision 529/2013/EU (European Commission 2016). The new framework also establishes a “no-debit rule”, according to which no Member State should have minimum net emissions on its territory. The use of flexibilities, including the accumulation of net removals over the 10 year period and the transfer of excess removals to other Member States, will be allowed. Together with the no-debit rule, this can set new incentives to increase GHG removals beyond the national commitment.

Article 24a (Directive 2009/29/EC): ‘Harmonised rules for projects that reduce emissions’

In 2009, a revision of the EU ETS Directive 2003/87/EC and the addition of Article 24a introduced a new instrument of domestic offsets to European emissions trading. Article 24a allows EU Member States to generate emission reductions through domestic offset schemes that can subsequently be translated into carbon credits. The regulation comprises “measures for issuing allowances or credits in respect of projects administered by Member States that reduce greenhouse gas emissions not covered by the Community scheme”. Credits resulting from Article 24a projects may be used for compliance purposes under the EU ETS.

In contrast to CDM and JI credits, the mechanism under Article 24a is independent from the Kyoto Protocol. However, any measures taken under Article 24a are not to be double counted, nor should they impede other policy measures targeted at reducing non-EU ETS emissions (Directive 2009/29/EC). The mechanism is not yet operational, as the implementing legislation by the European Commission required for this has not yet been issued. When exactly Article 24a will become operational remains unclear, but it is unlikely to happen by 2020.

3.2.2 Implications for domestic offset projects

In contrast to the scheme proposed under Article 24a EU ETS, the design of a domestic offset scheme is similar to that of a “unilateral JI”. The scope of action for domestic offset projects under EU climate policy is limited, though. Currently, domestic offset schemes may only implement projects in non-ETS sectors in order to avoid double counting issues with the housing, transport, agriculture, waste and the energy sector. Within this scope, different EU Member States pursue different approaches with regard to the sectors and project types eligible for domestic offset projects and to how they handle the issue of double counting.

One of the major difficulties for domestic offset projects within EU Member States is the fact that most low-cost abatement technologies and installations are among the ETS sectors and thus not eligible for voluntary domestic action (Hoozgaad and von Unger 2010). This means that many of the remaining options for domestic offsetting have high abatement costs that make them financially unattractive. Nonetheless, domestic offsets can play a very important role in achieving the reduction targets in non-ETS sectors so that exploring their potential within the confines of EU climate policy seems very worthwhile.

In any case, voluntary domestic projects within EU Member States need to pay special attention to the double counting issue, as double counting cannot only occur with the EU ETS but also with the ESD. Similar to the Kyoto Protocol’s AAUs, unless AEAs or EUAs are cancelled, voluntary offsets are at risk of double monetisation and undermining the offsetting benefit. Moreover, domestic offset schemes that coexist with the compliance schemes of the European Union need to ensure that double selling and double accounting are not possible, which – similar to the Kyoto framework – can be supported by enhanced tracking of transfers and issuance and centralized registries.

With respect to double claiming, a distinction can be made between horizontal and vertical systems. In horizontal systems (between states) such as the EU ETS, double claiming is an issue because it directly affects a fixed emissions cap. In contrast, double claiming of voluntary emission reductions both by the buyer and by the host country’s government within a vertical system (within states), i.e. the ESD for example, is not considered problematic by many project developers. As long as the reduction takes place in a non-ETS, non-Kyoto sector and is not traded among EU Member States, double claiming only affects the national ambition level.

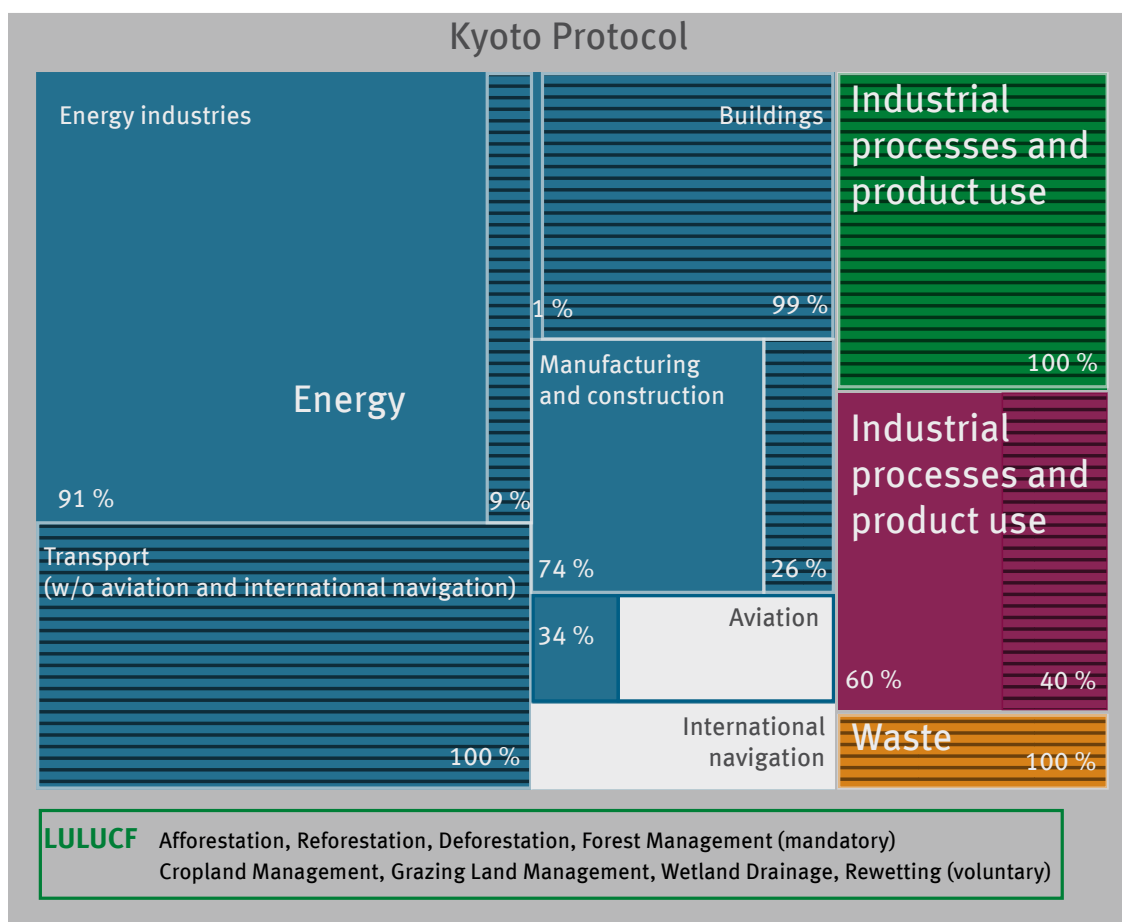


Figure 11: Coverage of different sectors by commitments under the Kyoto Protocol, the EU ETS and the ESD

¹ Based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories
² Based on Directive 2003/87/EC (consolidated version) and based on EEA Report No 4/2015, p. 28
³ Based on Decision 406/2009/EC and EEA Report No 4/2015, p. 28
⁴ The ESD covers all sectors that are not included in the ETS. This implies not only sectors categories but also smaller installations and plants that are excluded from ETS
⁵ Based on EEA greenhouse gas - data viewer (<http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>)

3.3 National framework: domestic offset projects in Germany

As laid out above, the German market for domestic offset projects is restricted both by the Kyoto Protocol and EU climate regulations. One option for domestic projects is the creation of carbon credits under the JI mechanism, under which about 25 projects were implemented in Germany (JI UNFCCC 2016). Examples of German JI projects include methane capture, power and heat generation from coal mine gas or the reduction of N₂O from nitric acid plants. While demand for domestic credits in Germany is high, only 10 percent of retired certificates on the voluntary market originate from German domestic projects (Wolters et al. 2015) – for two main reasons: first, the regulative frameworks of the Kyoto Protocol and EU climate policy limit the scope of possible project types. And secondly, abatement costs are significantly higher in Germany compared to offsets from developing countries.

3.3.1 Regulative framework

As for the first reason, standards like VCS and Gold Standard require AAU cancellation for voluntary domestic projects in sectors covered by Kyoto sectors as listed in Annex A or by EU ETS and ESD sectors. Additionality testing furthermore requires proof that the voluntary action is not supported by any other government programme or subsidy, such as the National Climate Initiative (NKI) or the Renewable Energies Act. Currently, the only Kyoto emission sources that are not accounted for in the German inventory are LULUCF activities classified as rewetting and wetland drainage. With regard to double counting, the risks that arise from Kyoto and EU regulations also apply to the German market. In particular, this means that double claiming can occur between the buyer of a credit from voluntary projects and the national government if emission reductions are accounted for in the German GHG registry. In countries that do not cancel AAUs or AEs for credits issued on the voluntary market, which currently includes virtually all Annex B countries, double monetisation poses a serious risk for domestic offset projects that reduce emissions in sectors counted towards the Kyoto or EU targets. One of the few cases of AAU cancellation was a VCS-certified hydropower project in Bulgaria (“Katuntsi Small Hydro Power Project”), for which the government cancelled more than 60,000 AAUs in exchange for the VERs. In Australia, all CFI / ERF credits from Kyoto activities that can be traded on the international voluntary market are coupled with AAUs, RMUs or ERUs (while applicable) that the government issues in exchange for Kyoto ACCUs. Germany currently has no provisions for the cancellation of AAUs in exchange for credits generated from voluntary offset projects.

An example of one of the few German domestic carbon initiatives is the MoorFutures standard, which offers emission reductions from peatland rewetting. Until 2013, peatland was not counted towards Kyoto targets in Germany’s national greenhouse gas inventory and did not cause any issues of double counting. Since COP17, however, Parties may account for emission reduction activities from wetland drainage, rewetting, cropland and grassland management on a voluntary basis. Germany decided to only include the activities of grassland and cropland in their GHG accounting during the second Kyoto commitment period. However, around 85 percent of CO₂ emissions from (former) peatlands in Germany are attributable to forestry and agricultural use (including grassland and cropland) (Höper 2007). The categories selected for accounting therefore already cover the majority of German peatlands and few activities can be classified as rewetting and wetland drainage. Projects aimed at rewetting peatlands that are used as croplands or grasslands therefore now face the same challenge as any other national climate protection project. In order to avoid double selling, each MoorFutures credit has a specific series number and is retired and recorded in a federal state registry (Bonn et al. 2014).

With regard to the European framework, Germany has to account for emissions and removals from afforestation, deforestation, reforestation, forest management and also for cropland and grazing land management.

Voluntary standards like VCS or the Gold Standard only allow projects to take place in Annex B countries⁸ as long as they are voluntary and comply with certain criteria: The Gold Standard, for example, requires an equivalent amount of AAUs to be cancelled for concerns about environmental integrity. Small-scale projects like MoorFutures often develop their own standard and verification procedures, as transaction costs for the use of external verification are very high. In the case of MoorFutures, the certificates rely on ‘inhouse verification’ (i.e. a weaker procedure than third-party verification) by University of Greifswald, Eberswalde University for Sustainable Development or TÜV Rheinland and are based on a methodology submitted to the VCS.⁹

⁸ Gold Standard restricts this for Annex I countries. Since Turkey and Belarus have no caps, this leaves Annex B Parties.

⁹ The methodology was submitted to the VCS and is so far not officially adopted by the VCS.

3.3.2 Cost effectiveness of domestic projects

Due to the high marginal abatement costs, offsetting in developing countries is usually considered to be more cost effective and to generate higher environmental benefits than offsetting in Annex I countries, as much higher emission reductions can be achieved with the same investment. On average, domestic offsets from European countries are the most expensive of all regions and are sold at \$11.2/t CO₂ eq (Hamrick and Goldstein 2015). Costs of validation, verification, and certification for smallsize projects are extremely high and cost effectiveness remains a major issue.

However, standards like MoorFutures mostly attract buyers that are locally based companies, individuals or organizations interested in offsets with regional benefits. MoorFutures do not only generate a regional impact through emission reductions within the federal state, but also by the co-benefits related to peatland rewetting. Ecosystem services include biodiversity conservation, improvements in water quality and nutrient retention, and a regulation of local climate and landscape water budget. Still, prices on the voluntary German market range from 2.11 €/t CO₂ eq or less (CERs) to 17.25 €/t CO₂ eq (former CFS combined with CCBS), making MoorFutures up to three times more expensive than the most costly standard on the voluntary market (30-50 €/t CO₂ eq). Apart from their environmental co-benefits, domestic offset projects can be effective instruments for examining new approaches in mitigation, accelerating the dissemination of green technologies and promoting innovation potential of the private sector.

4 Voluntary offset schemes in Annex I countries

This chapter examines the design of offset schemes in different Annex I countries that will serve as a basis for the final chapter's recommendations on the design of framework conditions for domestic offset schemes post-2020. This takes into account the opportunities and challenges identified in the previous chapter. The manifold approaches of current domestic offset initiatives fulfil an important "sandbox" function and allow the exploration of innovative and useful means for climate mitigation. Lessons learned can feed into the design of the post-2020 framework.

In order to identify suitable domestic offset initiatives for an in-depth analysis, more than 12 cases were pre-examined. We assessed their suitability for the purpose of the paper based on six main criteria:

- ▶ comparable regulatory framework (replicability)
- ▶ clarity and depth of the set of regulations in particular with view to double counting and additionality
- ▶ government role and involvement
- ▶ scope (t CO₂ eq and project pipeline) and track record
- ▶ availability of information
- ▶ overall balanced set of approaches

The preliminary analysis resulted in the selection of the following six countries:

1. Australia: Carbon Farming Initiative (and Emissions Reduction Fund)
2. France: Voluntary Carbon Land Certification (VOCAL)
3. Italy: Codice Forestale del Carbonio
4. Spain: 'Calculo, reduzco, compenso' and 'Fondo de Carbono para una Economía Sostenible (FES-CO₂)'
5. Switzerland: Domestic Compliance Scheme
6. United Kingdom: Woodland Carbon Code (WCC)

The case selection covers a range of initiatives with different degrees of public involvement, levels of integration into the compliance market and stages of implementation. The analysis of these case studies builds upon the insights on regulative conditions gained from the previous chapter and, additionally, provides input for the development of recommendations and design options for domestic offset schemes after 2020.

4.1 Analytical framework

In order to identify key features for the design of voluntary domestic offset projects, we developed a set of criteria to guide the analysis. Based on the analytical framework, each case study will first provide an overview of the initiative, commencing with a brief history of the scheme's evolution, major steps and achievements to date, followed by an analysis of market information, the role of government and governance in general, project information, methodology, registries and double counting provisions. The following sections of each case study assess how the extent to which the scheme's features are compatible with the pre-2020 framework, and to what extent they contribute to a post-2020 framework.

4.1.1 Overview of the initiative

(a) Market information

This section will look at market characteristics and will seek to answer the following questions:

- ▶ Since when has the scheme been operational?
- ▶ Who are the consumers/buyers?
- ▶ How many projects have been registered thus far, and how many are validated already?
- ▶ How many credits have been issued (if any at all)?
- ▶ What is the average price of the certificates?
- ▶ Are certificates tradable? If yes, on which scale (regional, national, international)?
- ▶ How can certificates be traded?
- ▶ Who are the project developers?

The market information is summarised in the form of standardised tables for each case study. The table also incorporates overview information on project types and areas, which are analysed in more depth in the respective section.

Table 4: The standardized table used in the case studies

| [Country] – [Initiative] | | |
|---|--|--|
| Operational since: <i>Year</i> | Government involvement: <i>Yes/No and type of involvement</i> | [LOGO] |
| Administered by: <i>[Name of institution]</i> | Agency type: <i>National government agency / subnational government / NGO / non-profit organization / foundation / etc.</i> | |
| Scope: Number of projects <i>[xxx M t CO₂eq] validated and/or verified</i> | Legal context: <i>Voluntary vs. regulatory</i> | Project type(s): ... |
| Average certificate price: <i>xxx €/t CO₂eq (as of...)</i> | Tradable: <i>Yes/No</i> | Type of standard: <i>Project-specific vs. Independent standard(s)/ registry/exchange)</i> |
| Project area(s): <i>Region/country-wide</i> | Buyers: | Type of units: |
| Short description | | |

(b) Governance and role of government

This aspect examines the role of national or subnational governments and their degree of involvement with respect to ensuring compatibility with compliance schemes.

While initially many governments of Annex I countries were sceptical about voluntary offsetting initiatives, due to a perceived “lack of market transparency, weak governance of existing standards and registries, and a poorly communicated product” (Peters-Stanley 2012), attitudes have gradually shifted to an acceptance and support of voluntary schemes.

Many governments have an increasing interest in domestic voluntary carbon offsetting, as a mechanism to lay the groundwork for regulatory frameworks and to tap potential for emission reductions and removals not included in compliance schemes.

Governments can assume different roles in engaging with the voluntary carbon market, ranging from rulemaking to set a basic regulatory framework to developing the methodology and administering the registry or the overall initiative. Moreover, governments can play an important role, not only in setting incentives for the supply side of carbon credits, but also in stimulating demand, which is a critical success factor for domestic offset initiatives (Peters-Stanley 2012).

(c) Project information

The project information section looks at the specific features of projects eligible under an initiative. This includes the geographic coverage of the scheme, i.e. whether it is limited to a specific region or allows for country-wide projects; as well as its sectoral scope, relevant for its compatibility with the compliance market. The section will also look at the types of projects and technologies accepted.

(d) Methodology / standard

In order to assess how robust and sophisticated the initiative's methodology is, several factors are examined under this criterion, especially:

- ▶ Which quality standard(s) is/are being applied? For example, does the initiative make use of existing quality standards on the voluntary carbon market? Has it developed its own standard, and, if so, does it have an external, independent accreditation and verification process? Independent, existing quality standards tend to increase the credibility of a project, aided by external validation and verification to contribute to the robustness of the baseline scenario and calculation of carbon benefit.
- ▶ Which monitoring, reporting and verification (MRV) processes are implemented? Who is in charge of the project validation, or the verification? What precision level is required? Does the initiative provide information on MRV costs? At the same time, this would give insights on the robustness of the methodology and verification processes, and will also allow time to see whether the initiative is operational and replicable at a larger scale. Validation and verification should be transparent and conducted by two different and accredited auditors.
- ▶ Which methodology is used and how is it developed? For example, does the initiative suggest the use of a CDM methodology or does it have its own manual? Who has been involved in defining the methodological guidelines? Internationally accepted methodologies, such as the CDM's, tend to be more robust and credible, and offer good documentation and guidance for project developers. If projects use their own methodology, they should ensure the development of guidelines are done in a participatory process with key stakeholders.
- ▶ Which types of additionality tests are applied? For example, does the scheme only consider financial additionality or does it apply further tests to make sure that a project is additional? The more types of additionality tests are required, the more comprehensive and reliable is the assessment.
- ▶ Has the methodology already been revised? This could be an indicator for the incorporation of lessons learned, making the methodology more credible and robust.
- ▶ Are credits issued ex-ante or ex-post? Whilst not immediately relevant for the design of domestic offset schemes, this question may be indicative of how rigid the methodology is: ex-ante crediting bears the risk that emission reductions are not realised as calculated, because they are based on projections. Ex-post crediting, in contrast, issues certificates after the reduction has been realised and is therefore more robust.
- ▶ In case of LULUCF projects, how does the methodology deal with the risk of non-permanence? For example, does it use temporary credits as the CDM or buffers like other private standards? Risks like forest fires, pest infestations or illegal logging should be taken into account and a buffer should be included in the calculation of the sequestration benefits.
- ▶ Are carbon co-benefits considered in the methodology (biodiversity, landscape impact, social and economic impact...)? This would allow seeing if the certified projects are able to go beyond carbon and deliver other environmental or social benefits.

(e) National registry and/or project registries

In order to keep track of issued certificates and to avoid double selling or double accounting of units, a central registry can be of great importance. Therefore, it will be examined where the projects and the certified units are registered and documented. This also includes questions as to whether or not all information is provided in a transparent manner and is publicly accessible, how credits can be transferred from one registry to another, if carbon units are traceable (e.g. serial number) and if credits are retired.

(f) Double counting provisions

This part of the analysis will assess how the initiative deals with different types of double counting. Moreover, it will examine which precautionary measures (if any) have been developed to prevent different types of double counting or how the set-up is designed to eliminate the possibility of double counting altogether.

4.1.2 Integration of the initiative in the pre-2020 framework

After examining the basic facts, regulations and cornerstones of an initiative, this part will examine how the initiative is embedded in the pre-2020 compliance framework. First, a brief overview of national regulations is provided in order to set the context. The ensuing assessment will focus on what implications the initiative's characteristics (e.g. sectorial scope, methodology applied) have for its compatibility with the compliance market.

In particular, the way the initiative communicates and deals with questions of double counting will be further assessed based on the insights from the previous section: how is a potential overlap with compliance targets handled? Are credits counted towards the national target?

4.2 Australia

4.2.1 Overview of the initiative

The Australian Carbon Farming Initiative (CFI) is a voluntary offset scheme for emission reductions and sequestration in the agriculture, legacy waste and LULUCF sectors. As agriculture and forestry are responsible for almost 20 percent of Australia's GHG emissions, the scheme initially focused on agriculture and LULUCF sectors' potential to reduce emissions and increase the carbon sink potential of soils and vegetation. As the land sector is partly exempt from emission reduction obligations in Australia, land owners may develop emission avoidance or sequestration projects and sell credits to companies with emission liability (Climate Change Authority, 2014).

The scheme officially ran between September 2011 and December 2014, and has, since then, gradually been integrated into the Emissions Reduction Fund (ERF). The ERF, also a voluntary domestic offset scheme, is run by the Australian government to help achieve the Australian reduction target in 2020 and has a broader scope of project types and mechanisms than the CFI. With the establishment of the Emission Reduction Fund, the existing Carbon Farming Initiative framework for crediting emissions reductions is expanded to cover the broadest possible range of emissions reduction opportunities across the economy. This case study focuses on the design of the CFI, pointing towards major changes under the ERF where relevant and necessary.



Source: Clean Energy Regulator 2016a

Figure 12: Map of CFI/ERF projects

(a) Market information

Table 5: Australia – Carbon Farming Initiative (CFI) and Emission Reduction Fund (ERF)

| Australia – Carbon Farming Initiative (CFI) / Emission Reduction Fund (ERF) | | |
|--|---|--|
| Operational since: 2011 | Government involvement: Developed and managed by the national government | |
| Administered by: Australian Government – Department of the Environment | Agency type: National government agency | |
| Scope: 32,712,223 t CO ₂ e issued since December 2012 | Average certificate price: Fixed price period 2012-15: A\$ 23/ t CO ₂ e in 2012 --> rising at 2.5 per cent per year until 2014-15 Flexible price period beyond 2015: A\$13.95 t CO ₂ e (April 2015) (Clean Energy Regulator 2015a) | Project types: <ul style="list-style-type: none"> ▶ Agricultural emissions avoidance ▶ Landfill legacy emissions avoidance ▶ Introduced animal emissions avoidance ▶ Sequestration offsets ▶ <i>Energy efficiency</i> ▶ <i>Transport</i> ▶ <i>Industrial fugitives</i> |
| Legal context: Voluntary | Tradability: Kyoto ACCUs: Internationally Non-Kyoto ACCUs: Nationally | Type of standard: Project-based |
| Project area(s): Country-wide | Buyers: Companies, landfill operators, individuals, government (through reverse auctions) | Type of units: Australian Carbon Credit Units (ACCUs) |

Short description

The Carbon Farming Initiative (CFI) is a national voluntary offset scheme that was initiated by the Australian government in 2011. Since 2014, it is part of Australia's Emissions Reduction Fund, constituting a centrepiece of the Australian Government's emission reduction policy. CFI enables farmers to voluntarily engage in GHG emission reduction or removal activities to earn carbon credits which can be sold both on the voluntary and the compliance carbon market, i.e. to companies that must or want to offset their emissions. Carbon credits under the CFI are known as "Australian Carbon Credit Units" (ACCUs). The CFI covers activities in the agriculture and land use sectors, as well as emission reductions from legacy landfill waste, which was complemented by activities in the sectors energy efficiency, transport and industrial fugitives under the ERF.

(b) Governance and role of government

The CFI was officially introduced by the Australian government in 2011. The Australian Department of the Environment oversees the scheme and is responsible for developing its methodologies. CFI is administered by the independent agency Clean Energy Regulator, which is the Australian government body responsible for administering legislation on carbon emission reduction and increase the use of clean energy. Clean Energy Regulator is responsible for project registration and approval, issuance of ACCUs and management of holding, transfer, retirement, relinquishment and cancellation of ACCUs through the registry (CFI 2012). It furthermore runs auctions and manages contracts for the purchase of emissions reductions.

The government also assumes a regulative role in influencing the price of ACCUs. Credits generated through the CFI can be used both on the voluntary and on the compliance market. All activities included in the Australian GHG account under the Kyoto Protocol commitments are eligible to generate Kyoto Australian Carbon Credit Units (ACCUs) that can be sold to one of the approximately 500 Australian companies with legal GHG reduction obligations. Emission reductions or removals from activities that do not fall under Australia's Kyoto commitments may earn non-Kyoto ACCUs for sale on the voluntary domestic carbon market.

The CFI was introduced in 2011 together with a Carbon Pricing Mechanism¹⁰, which had a fixed price (2012 to 2014) and a floating price period (from 2015 onwards, not put into practice). For the fixed price period the government determined an initial price of A \$ 23 per t CO₂ eq for companies legally obliged to reduce their emissions. This price increased by 2.5 percent annually. During the time of operation of the CFI, as companies paid the fixed carbon price within the Carbon Pricing Mechanism, the government used these revenues to purchase some non-Kyoto ACCUs. In 2013, the government established a A \$ 250 million fund to purchase a part of non-Kyoto ACCUs via a competitive tender. The other part of non-Kyoto ACCUs can be bought by companies or individuals willing to voluntarily offset parts of their GHG emissions (CFI 2012). Under the CFI, farmers and land managers can earn carbon credits and sell these to people and businesses wishing to offset their emissions.

Following a change of government in Australia, the Carbon Farming Initiative Amendment Bill was passed in 2014 to implement the Emission Reduction Fund. The government still takes a strong regulative role within the ERF. It has committed A \$ 2.55 billion for the ERF to purchase ACCUs¹¹ via the fund's purchasing mechanism through a reverse auction process. Scheme participants may also choose to sell their ACCUs not to the government but on the secondary market or use them to offset their own emissions. The Australian government has committed an additional A \$ 2.4 billion for the ERF for the period of 2018 to 2030 (de Wit 2015).

(c) Project information

Within the CFI, projects can cover the sectors agriculture, land use and legacy landfill waste, divided into avoidance and sequestration of greenhouse gases. The Department of the Environment provides an extensive list of eligible activities, as well as a negative list of excluded activities that would pose significant risks for water, biodiversity, local communities or employment (Murray, 2012). Avoidance of agricultural emissions mainly includes activities to reduce methane or nitrous oxide from livestock and land use, e.g. grazing management, biological and biodynamic farming, composting, pasture cropping, soil inoculants.

¹⁰ The Carbon Pricing Mechanism was abolished in 2014 (Clean Energy Regulator 2015b), followed by the expansion of the CFI towards the ERF.

¹¹ "The Regulator can purchase emissions reductions in the form of eligible carbon credit units, on behalf of the Commonwealth. Eligible carbon credit units are units which are Kyoto Australian carbon credit units or prescribed eligible carbon units. Prescribed eligible carbon units may be used as alternatives to Kyoto Australian carbon credit units" (Parliament of the Commonwealth of Australia 2014: 39).

Landfill legacy focuses on avoiding GHG emissions from operating landfill facilities and sequestration projects referred to removal of GHG emissions through or avoidance of GHG emissions from living biomass, soils or dead organic matter (for more details see list of activities¹²). The types of eligible projects include planting native vegetation, restoring drained wetlands or applying biochar to soil.

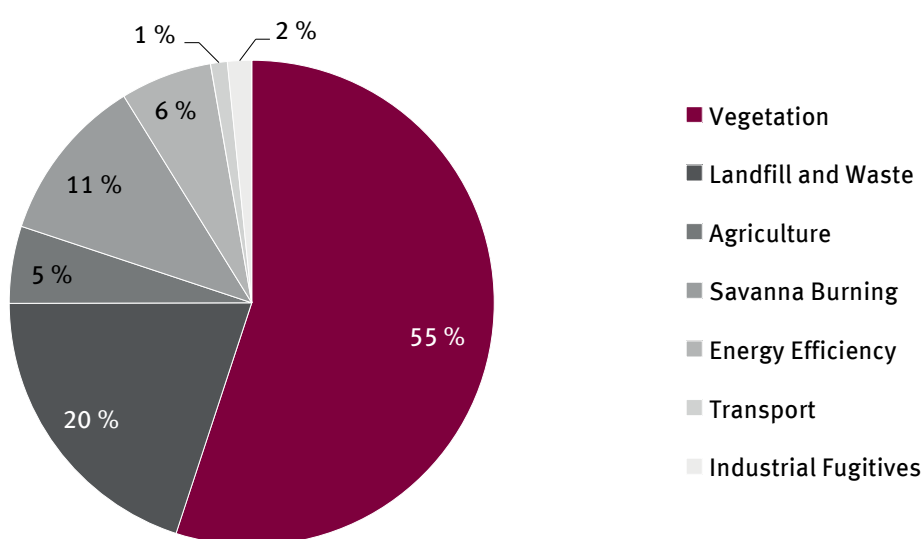
The newly established ERF builds on the CFI, but goes further by including a range of activities from additional sectors. The official scope of the ERF now encompasses vegetation, landfill and waste, agriculture, savanna burning, energy efficiency, transport and industrial fugitives (Clean Energy Regulator 2016a). Moreover, as a major change, the scheme has moved from fixed prices to flexible prices based on a reverse auction process in 2015. Since 2011, 667 projects have been registered under the CFI or ERF, respectively, that together have been issued more than 32 M t CO₂ eq. At the ERF's first auction in April 2015, 107 carbon abatement contracts were given to 43 participants for 144 projects with a total value of more than A\$660 million. The average price was at A\$13.95 per ton of CO₂ eq.

The ERF consists of three pillars: (1) crediting of emission reductions, (2) purchase of credited reductions through reverse auctions, and (3) a safeguard mechanism that commenced in July 2016 and essentially intends to avoid double counting of emission reductions as well as carbon leakage domestically.

Table 6: Total number of projects and ACCUs issued per method in the ERF

| Method | Projects | ACCUs issued (tCO ₂ e) (since Dec 2012) |
|----------------------|----------|--|
| Vegetation | 358 | 17,751,881 |
| Landfill and Waste | 131 | 12,617,095 |
| Agriculture | 36 | 266,211 |
| Savanna Burning | 76 | 2,775,170 |
| Energy Efficiency | 46 | 0 |
| Transport | 7 | 0 |
| Industrial Fugitives | 13 | 0 |
| Total | 667 | 32,712,223 |

Project types (per number of projects)



Source: Clean Energy Regulator 2016b (as of June 2016)

Figure 13: Share of project types in the ERF

¹² <https://www.environment.gov.au/climate-change/emissions-reduction-fund/cfi/activities-eligible-excluded>

(d) Methodology

The CFI and the ERF do not make use of independent quality standards but rely on their own specific rules. The Department of the Environment develops the rules and methodologies for different abatement activities under the ERF or the Carbon Farming Initiative's baseline and credit scheme. The methodology needs to be assessed by the Domestic Offsets Integrity Committee (DOIC) and finally approved by the Minister for the Environment, through which it becomes a legislative instrument (Climate Change Authority 2014). Project developers may also propose their own methodology, which then needs to be authorised by the DOIC as well. In 2014, there were 22 approved CFI methodologies for the different project types.

In 2015, 16 CFI methodologies were revoked and another 10 were amended as part of integration into the ERF in order to make way for transitioning methods or new land sector methods under the ERF. However, these changes in methodology do not affect existing projects, which are automatically transitioned into the ERF, but may continue to operate under CFI methods, if desired. New land sector and waste projects, in contrast, must use ERF methodology.

According to CFI, project developers must use an approved methodology for their project to be authorised under the scheme through which they can prove that the reduction or removal is measurable and verifiable. Project proposals must include a description of the planned activity and its emission reduction or carbon storage function, a list of emission sources and sinks affected by the project, a baseline and measurement procedures, and provisions on data collection, monitoring and reporting of emission reductions or removals (CFI Handbook 2012).

Eligibility

Some general preconditions for project approval, as defined in the CFI handbook, include the project proponent's proof of legal right to undertake the project (e.g. land rights), the existence of an approved methodology for the desired project type, additionality and the listing of the activity on the positive list. There is no independent third party validation of the project proposal. However, an independent initial audit is conducted after the first six months to two years (emission reduction) or five years (sequestration projects) into the crediting period.

Participants of the CFI must be registered as recognised offsets entity (ROE). ROEs can be independent landholders choosing to undertake a project themselves, cooperatives of several landholders or aggregators. Landholders may also choose to contract professional service providers to develop the project for them, while remaining the ROE and receiving the carbon credits themselves.

Reporting, monitoring and verification

Whilst general requirements applicable to all project types can be found in the CFI legislation, each methodology specifies the monitoring and reporting requirements depending on the different activities. Under the CFI, project reports had to be submitted to the administrator Clean Energy Regulator at least every five years, as well as at the end of the crediting period. With the ERF, the maximum reporting period has reduced to two years for emissions avoidance projects, but remains at five years for sequestration projects. Crediting periods are usually seven years, with the exception of reforestation (15 years) and native forest projection (20 years).

Project reports need to include information on the GHG baseline, calculations of reductions or removals throughout the reporting period, project activities and technologies and other methodology-specific information. The project reports are reviewed by the Clean Energy Regulator and serve as a reference for the issuance of ACCUs. In some cases, project reports must be accompanied by audit reports prepared by independent auditors who have successfully registered with CFI/ERF as Greenhouse and Energy Auditors (Clean Energy Regulator 2015c).

A minimum of three audits is required under the ERF during a crediting period. Beyond these three, audits are conducted on a risk-based approach, which means they must only accompany a project report if required by certain legislative rules (e.g. very high reduction or sequestration volumes).

Additionality

Proving additionality of carbon offset and sequestration projects is a key requirement for activities to be eligible under the CFI. According to the CFI handbook, only "activities that are additional provide a net environmental benefit that can 'cancel out' emissions that occur elsewhere" (CFI 2012).

The CFI additionality test consists of two parts:

1. Legal test: Any activity required by law to take place is not additional and therefore not eligible.
2. Common practice test: Any activity that is regarded as common practice is not additional, as it would very likely have been implemented anyway in absence of the project. The CFI provides a positive list of activities that go beyond common practice.

There is no financial additionality test for the CFI. The common practice test was introduced by the Department of the Environment to avoid project-level additionality tests, which have proven to be often complex and limiting for project opportunities. Instead, the positive list provides a broad range of activities and gives “rigorous advice on whether or not activities are common practice in a particular industry or sector”, giving early guidance and making it easier and more reliable for project proponents to plan their activities (Climate Change Authority 2014).

The positive list currently includes the following categories: Vegetation and wetland restoration projects, legacy landfill gas projects, and livestock management and other activities (Department of the Environment and Energy 2016). Each category specifies multiple activities or technologies that are eligible together with an explanation of the potential barriers that need to be overcome.

Co-benefits

Project developers may apply to the CFI for their project to be recognised as providing co-benefits, such as benefits to biodiversity or indigenous communities. If the criteria are met, projects can advertise their co-benefits both in the registry and in communicating their carbon credits in general. Moreover, the CFI emphasises the co-benefits that agroforestry can have on production. Experience has shown that production levels can be maintained whilst planting trees on 20 percent of the land, with increased biodiversity, landscape resilience and lower evaporation levels (Carbon Farmers of Australia 2012).

Permanence

In the case of sequestration projects, CFI measurement methods account for the risk of leakage and variability and are based on conservative assumptions. To safeguard permanence, projects that sequester or store carbon in soils and vegetation must maintain carbon stocks for a period of at least 100 years. Landholders wishing to change land uses or to cancel their CFI project may do so at any time, but must hand back an amount of ACCUs equivalent to those already issued to the Clean Energy Regulator. To do so, project holders may purchase credits on the market or use credits from another one of their projects.

Under the new ERF, project operators may choose to reduce the permanence period to 25 years. In this case, the number of ACCUs issued for the project are reduced by 20 percent in order to cover potential costs the government might have in replacing the carbon sinks if the project operator chooses to opt-out early.

In case of carbon loss (e.g. through bushfire, drought, disease, etc.), landholders do not need to return credits but will stop receiving ACCUs over the recovery period. However, to bolster the risk of reversal, a buffer of five percent of the sequestered carbon is applied to all sequestration projects, meaning that landholders only receive 95 percent of the credits.

(e) National registry and/or project registries

Credits under the CFI are only issued ex-post and on the basis of verification reports. ACCUs and ownership information were formerly published in the Register of Offset Projects, now the Emissions Reduction Fund project register, which is publicly available and discloses all relevant information on each project. According to the Carbon Credits Act 2011, the operating agency Clean Energy Regulator is required to publish and maintain the details of all registered projects. Information include the project type, the location, methodology, project period, the number of ACCUs issued (and the amount of Kyoto or non-Kyoto ACCUs among these), and if and how many units have been retired.

Non-Kyoto ACCUs can only be traded within Australia, while some Kyoto ACCUs may be sold or traded internationally as well. For international trading credit holders have the option of exchanging their Kyoto ACCUs for AAUs or RMUs. ACCUs do not necessarily have to be traded immediately, but can be banked for future trading or use.

Units may be voluntarily cancelled by their owners to remove them from circulation and make them ineligible to be used towards Australia's Kyoto targets (Clean Energy Regulator ANREU 2.1).

(f) Double counting provisions

Within the CFI framework, the risk of double counting is addressed on different levels. According to article 15A of the Carbon Credits (Carbon Farming Initiative) Act, carbon sequestration and avoidance projects must conduct a 'no double counting test'. To pass this test, the carbon abatement for which the project developer requests that ACCUs must not be reflected in "another certificate of entitlement issued in respect of the project", nor in a "certificate of entitlement issued in respect of another eligible offsets project" (Carbon Credits Act 2011). This is to prevent double issuance of credits for emission reduction or removal from the same project. In order to avoid double selling, all projects are listed in a public registry. Each project is listed with its unique ID and the exact location of the land area on which the abatement is realised. Transactions and voluntary cancellations are likewise available online and allow for tracing of each unit.

As for double claiming, all CFI / ERF credits from Kyoto activities that can be traded on the international voluntary market are coupled with AAUs, RMUs or ERUs (while applicable) that the government issues in exchange for Kyoto ACCUs. This avoids both the risk of double claiming and double monetisation. At the same time, project proponents have more flexibility and can decide how to use their credits. Regarding the domestic market, during the fixed price period up to 5 percent of a company's emission reduction obligation could be met with Kyoto ACCUs. In the floating price period, companies were expected to meet up to half of their obligations using international units. Within this 50 %, 12.5 % could be met with Kyoto units; the use of ACCUs was not limited (Department of the Environment 2013). However, this regulation lost its importance because of the repeal of the Australian Carbon Pricing Mechanism.

With the ERF, a new safeguard mechanism aims to "ensure that emissions reductions purchased by the government are not offset by significant increases in emissions above business-as-usual levels elsewhere in the economy" (Clean Energy Regulator 2016c). At the same time, the safeguard mechanism establishes emission baselines for around 140 businesses to ensure that the emission reductions achieved through the ERF's crediting and purchasing elements are not revoked by higher emissions in carbon-intense enterprises. This compliance mechanism is complementary to the voluntary participation in the ERF and has specific double counting rules that are specified in detail (Department of the Environment 2015). Given the compliance character of the safeguard mechanism, these will not be further discussed in this case study.

For Non-Kyoto ACCUs, however, the situation is more complex. Non-Kyoto ACCUs are voluntary units created from non-Kyoto activities that could not be surrendered under the Carbon Pricing Mechanism. Double claiming and double monetisation of Non-Kyoto ACCUs could potentially occur if the units were accounted for in the national inventory and claimed by the Australian government. However, the Australian CFI/ERF scheme has an interesting approach to avoid double counting that is different from the other schemes examined in this report: Currently, double counting in terms of double claiming and monetisation is avoided by the fact that abatement from non-Kyoto ACCUs is not reflected in Australia's Kyoto accounts (Australian Parliament 2011).

During the first Kyoto commitment period until 2013, the Australian government cancelled AAUs in exchange for credits issued and retired under the former voluntary initiative "Greenhouse Friendly" (Department of the Environment n.d.). When the CFI scheme was designed, the initial idea was to similarly cancel Australian AAUs for all CFI credits voluntarily surrendered (de Wit 2010) in order to avoid double monetisation – but this does not appear to have been put into practice. Instead, by not accounting for abatements from voluntary domestic projects, the mechanism ensures that the carbon benefit is additional to government efforts aimed at international commitments.

4.2.2 Integration of the initiative in the pre-2020 framework

The CFI and now the ERF comprise both Kyoto and non-Kyoto activities and enable project proponents to generate Kyoto ACCUs or non-Kyoto ACCUs (Department of the Environment 2013). When the CFI was introduced during the first commitment period of the Kyoto Protocol, Australia had opted out of accounting for voluntary activities under Article 3.4 (forest land management, cropland management, grazing land management and/or revegetation), including soil carbon, feral animal management, improved forest management and non-forest revegetation. Projects in these areas were eligible to earn non-Kyoto ACCUs that could only be sold on the voluntary market.

With the second Kyoto period and the inclusion of additional mandatory activities under Article 3, Australia was obliged to count all forest management activities towards their target, leaving less activities eligible for non-Kyoto ACCUs. Furthermore, the Australian government decided in 2013 to voluntarily add cropland management, grazing land management and revegetation to their accounting obligations. Therefore, activities within the scope of the CFI that receive Kyoto ACCUs (KACCUs) for sale on the compliance market include “reforestation, avoided deforestation, and reducing emissions from livestock, manure, fertiliser and waste deposited in landfills before 1 July 2012” (Department of the Environment 2013).

In addition, all activities added under the ERF, including energy efficiency, transport and industrial fugitives, are Kyoto activities and can only earn KACCUs. Between December 2012 and June 2016, more than 25 million ACCUs were issued through the CFI and the ERF. Of these, only approximately one million, or 4.3 percent, were non-Kyoto ACCUs.

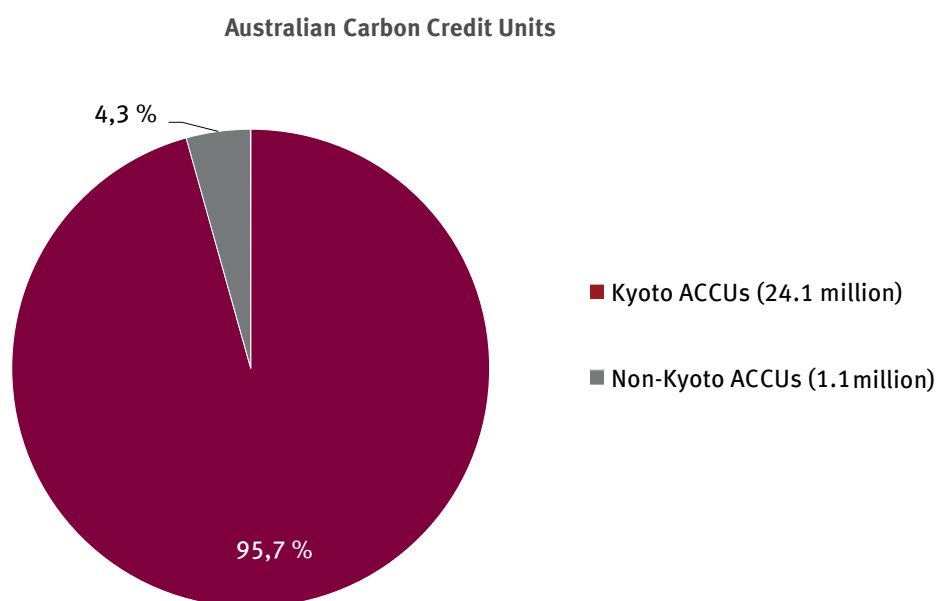


Figure 14: Share of Kyoto and Non-Kyoto ACCUs of the total sum of ACCUs issued between December 2012 and June 2016

With this two-pronged approach to carbon crediting that includes both the voluntary and the compliance market, the Australian scheme handles a much larger volume than most offsetting schemes that are exclusively voluntary. This could substantially reduce transaction costs and create synergies, as similar processes, methodologies and institutions are involved in both voluntary and compliance projects.

Moreover, by consolidating voluntary and compliance schemes, the Australian mechanism facilitates project development in the LULUCF sector, as project proponents can more easily combine activities eligible for Non-Kyoto ACCUs and other activities that may only receive Kyoto ACCUs in one project.

With regard to additionality, the ERF has chosen a pragmatic approach that enables project developers to more easily prove that their project goes beyond common practice. Instead of complex, individual additionality tests at project level, although more reliable and accurate, the selected technology-specific approach decreases administration costs, which provides incentives for participation in the scheme. Moreover, it saves time and money for project proponents who after conducting complex tests might find out that their proposed activity is not additional. This could help to leverage the volume of carbon credits in the voluntary market.

With its reverse auction mechanism the initiative provides both incentives to develop low-cost abatement technologies and facilitates medium to longterm planning by guaranteeing financial support for a certain period of time.

Table 7: Safeguards to avoid double counting and implications for environmental integrity in the ERF

| Type of double counting | Safeguards to avoid double counting | Implications for environmental integrity / credibility of the scheme |
|-------------------------|---|---|
| Double selling | Public registry that lists each project with a unique ID and the exact location of the land area on which the abatement is realised. Transactions and voluntary cancellations are specified in the registry and make units traceable. | [Double selling virtually impossible; environmental integrity unimpaired |
| Double issuance | ACCUs must not be reflected in “another certificate of entitlement issued in respect of the project”, nor in a “certificate of entitlement issued in respect of another eligible offsets project” | Double issuance virtually impossible; environmental integrity unimpaired |
| Double claiming | Non-Kyoto ACCUs | |
| | Any abatement from activities that generate non-Kyoto ACCUs is not reflected in Australia’s Kyoto accounts | Environmental integrity is not impaired, as the emission reductions from voluntary domestic projects are not accounted for in the national GHG inventory. |
| | Kyoto ACCUs | |
| | Purchased by the government: KACCUs are transferred to the ERF Delivery Account under a carbon abatement contract and cancelled by the Regulator | Environmental integrity is not impaired, as the units are only claimed by the government |
| Double monetisation | Non-Kyoto ACCUs | |
| | Any abatement from activities that generate non-Kyoto ACCUs is not reflected in Australia’s Kyoto accounts. Moreover, ACCUs may only be traded domestically. | Environmental integrity is not impaired, as the units are not reported in Australia’s inventory report and thus have no impact on AAUs or RMUs. As credits must not be sold outside Australia, the issue of AAU or RMU cancellation does not arise. |
| | Kyoto ACCUs | |
| | Export: Government exchanges credits for AAUs, ERUs or RMUs Domestic use / sale on domestic market: use for compliance is possible | Environmental integrity is not impaired, as the government transfers AAUs / ERUs / RMUs of an amount equivalent to the KACCUs to the credit owner No double monetisation if units are used for compliance |

4.3 France: Voluntary Carbon Land Certification (VOCAL)

More than 80 percent of French land (including overseas departments and territories) is covered by forests (31 percent) and agricultural land (52 percent) (World Bank 2013). The agriculture, forestry and other land use (AFOLU) sector therefore offers great potential for carbon sequestration in France. In 1990, LULUCF provided a net sink for 23 million t CO₂ in France, and this figure is projected to increase to 65 million t CO₂ by 2020 (Eisbrenner and Gilbert 2009). In 2010 and 2012, two research clubs¹³ were created by I4CE and forestry and agriculture institutions in order to use economic tools to encourage enhanced mitigation action in those sectors.

13 Carbon Forest & Wood Club and Climate and Agriculture Club

Carbon offsetting was given particular attention, and several important challenges on the way to the development of offset schemes in France were highlighted: most importantly, insufficient legal framework for improved forest management projects to be accepted into a ‘domestic JI’ scheme, the issue of double-counting, high transaction costs, and lack of transparency. Even though it is currently not possible to certify national projects, the expertise of project holders in the AFOLU sector is growing rapidly. According to a survey conducted by the Institute for Climate Economics (I4CE), 30 % of participating organisations (of which 31 are private enterprises, 3 are public institutions and one is specified as ‘other’) already offset all or part of their greenhouse gas emissions and another 36 % consider to offset their emissions (Tronquet et al. 2017).. These different observations led the Club members to reflect upon the creation of a national certification framework. The Voluntary Carbon Land Certification (VOCAL) project started in 2016 and aims to establish a new national carbon certification scheme for emissions reduction projects in forestry and agriculture sectors, which would be validated by the French Environment Ministry (MEEM) in 2017 (Grimault 2016).

4.3.1 Overview of the initiative

(a) Market information

Table 8: France – Voluntary Carbon Land Certification (VOCAL)

| France – Voluntary Carbon Land Certification (VOCAL) | | |
|---|---|---|
| Operational since: <i>in development since beginning of 2016</i> | Government involvement: Collaborates in and will officially approve methodology for certification | |
| Administered by: Project lead : Institute for Climate Economics (I4CE) Framework validation and management : French Ministry for Environment (MEEM) | Agency type: Association of private and public stakeholders | |
| Scope: N/A | Average certificate price: 4-16 €, but higher range expected for certified offsets and with co-benefits (Tronquet et al. 2017) | Project types: Agriculture and forestry. |
| Legal context: Voluntary | Tradability: N/A | Type of standard: National, project type specific |
| Project area(s): Country-wide; pilot project area: Massif Central | Buyers: <i>N/A, primarily aimed at private sector. A market analysis is carried out in parallel to the methodology development.</i> | Type of units: N/A |
| Short description The project Voluntary Carbon Land Certification aims to develop a methodological framework for validating carbon reduction/removal units in agricultural and forestry projects in France. The focus of this case study is on the institutional setup, processes and conceptual aims so as to facilitate similar endeavours in other countries by providing insights into a replicable approach. | | |

(b) Governance and role of government

The certification scheme is developed in close collaboration with the French government: The environmental ministry (MEEM) participates actively in the steering committee of the project and is a member of the two different Clubs (see above). Furthermore, MEEM is committed to approving the certification framework a priori in mid-2017. It will then be in charge of validating the methodologies. This approach has considerable advantages and could, therefore, be an interesting example for replication:

- ▶ A domestic stakeholder group develops the framework, thereby reducing government workload and ensuring the maximum utilization of expertise.
- ▶ Government endorsement/approval of the certification framework promises to improve trust and the visibility of domestic offset projects, thereby potentially increasing market demand.

The process is furthermore supported by the European Regional Development Fund (ERDF) and ADEME (French Environment and Energy Management Agency). Co-financing is also provided for methodology and framework development.

(c) Project information

Buyers will primarily be companies, but the buyer profile is subject to a market analysis currently carried out in parallel to the methodology development.

The project types covered include:

- ▶ Afforestation/reforestation
- ▶ Improved forest management (conversion from coppice to high stand forest)
- ▶ Improved forest management (practice choice still discussed within the stakeholder group)
- ▶ Cattle (improved grazing management, manure management, etc.)
- ▶ Crops (reduction of nitrogen fertilisation)

Details of the methodologies are still discussed, but it is envisaged to rely on existing methodologies (CDM, VCS) to conduct barrier tests and to ensure additionality of the projects. There will be ex-post credits but the option of ex-ante credits is being considered as ex-ante payments are necessary for many forestry projects (Grimault 2017).

The scheme has the following proposed schedule: In 2016, a market analysis will be completed to identify the drivers of national demand for carbon credits. A forest owners study will be conducted to assess the capacity and needs of forest owners for the implementation of carbon projects. Apart from that, an overview of the national initiatives in other countries will be completed. Finally, the development of the Code will be started. In 2017, the methodologies will be developed and a legal and financial study will be conducted. For late 2017, validation of the Code and the methodologies is envisaged. The first pilot projects already commenced in 2015, with the pilot phase continuing until the end of 2017.

(d) Methodology / standard

The methodologies developed first comprise:

- ▶ **Afforestation/reforestation**
A French JI methodology has recently been approved and will provide the basis for the methodologies in afforestation/reforestation.
- ▶ **Improved forest management**
Two types of methodologies are being developed on specific forest management practices. These are very specific to France and there are few examples in the context of other countries that could be used as a model, so methodologies are to a large extent being developed from scratch.
- ▶ **Emission reductions in plantations (cereals, oils etc. – “grandes cultures”) and cattle farming**
Methodologies are being developed in accordance with the so-called basket approach.

In general, existing standards and methodologies such as the Verified Carbon Standard, the Gold Standard, as well as the CDM and JI methodologies are being reviewed and provide a helpful basis for the development of the new methodological framework. In addition to this, experiences with similar schemes and initiatives introduced in other countries (primarily Spain and the UK) are being considered.

The methodologies will be developed by the CNPF (National Center for forest property) and I4CE. The GIP Massif central projects serve both as a pilot to identify the parameters of demand and supply for forest carbon projects and to test the methodologies. To date, around ten forestry projects have been identified. Five pilot projects have been financed by the French La Poste Group. These projects not only offer carbon sequestration benefits, but also additional socio-economic and landscape benefits. In order to receive financial support, projects need to develop a management plan for at least ten years.

(e) National registry and/or project registries

The French Ministry of the Environment (MEEM) will maintain the registry.

(f) Double counting provisions

Double counting provisions are still to be decided, but in general VOCAL aims to contribute to national and European greenhouse gas reduction targets. A transparency approach is likely to be adopted: As long as project and emission reduction/removal details are clear and transparent, involved stakeholders can communicate their voluntary contributions and there will be clear communication of the double claiming issue. AAU cancellation is not planned.

4.3.2 Integration of the initiative in the pre-2020 framework

The initiative is still under development and not yet operational. An analysis of how it related to the pre-2020 framework is therefore not feasible.


4.4 Italy

4.4.1 Overview of the initiative

The domestic voluntary carbon market in Italy is small, and supply is dominated by Italian NGOs generating credits in developing countries. Italy converts carbon stored by Italian forests, both public and private, into RMUs for potential use towards fulfilment of its emission reduction obligations under the Kyoto Protocol without installing a compensation mechanism for forest owners and managers. As a consequence, forest owners have restricted access to carbon markets for concerns of double claiming (Romano et al. 2015a). At the same time, not all RMUs can be used for compliance with the Kyoto Protocol, and the LULUCF sector holds great sequestration potential also for the voluntary carbon market. The initiative of the Italian Forest Carbon Code (FCC – Codice Forestale del Carbonio) has been developed to look into innovative carbon sequestration activities outside the common definition of forest management practices applied for RMU generation. The FCC is a handbook for developers of carbon sequestration projects in Italy that focuses on facilitating investments in forest and farmland management and fostering sustainable management of green areas to generate carbon credits for the voluntary market. Although the forest sector plays an important role both in the voluntary and the compliance market, many projects still work without guidelines, quality standards and external certification, or use their own standards, because costs seem too high for micro or small projects (Goldstein et al. 2014).

(a) Market information

Table 9: Italy – Codice Forestale del Carbonio

| Italy – Codice Forestale del Carbonio | | |
|--|--|---|
| Operational since: 2013 | Government involvement: Funding (Ministry of Agriculture and Forestry) |  |
| Administered by: Developed by the Nucleo Monitoraggio Carbonio | Agency type: National Ministry | |
| Scope: <i>Not applicable</i> | Average certificate price: <i>Not applicable</i> | Project types: Forestry (Land use) |
| Legal context: Voluntary | Tradability: <i>Not applicable</i> | Type of standard: Project-based |
| Project area(s): Country-wide | Buyers: <i>Not applicable</i> | Type of units: None |

Short description

The “Codice Forestale del Carbonio” (FCC – Forest Carbon Code), first released in 2012, aims at stimulating a low carbon economy by facilitating public and private investment for the creation of new forests and the improvement of green systems in agricultural and urban environments in Italy. The FCC supports the development of domestic forestry projects for the use on the voluntary carbon market. It does not offer formal certification of forestry projects but rather provides good practice guidance and touches upon major issues project developers should take into consideration to enhance quality standards and harmonise the process of carbon crediting throughout Italy.

b) Governance and role of government

Since 2009, the Italian Nucleo Monitoraggio Carbonio (“Carbon monitoring group”), a group of three independent research institutions and three communications partners,¹⁴ is working on the development and implementation of guidelines on forestry and land use for Italian offset companies, inspired by initiatives both from Europe and countries like Australia. In 2012, the first draft of the Italian Forest Carbon Code (version 0.1) was released and advanced in a participatory consultative process with more than 400 participants and 50 Italian signatory organisations. Between 2012 and 2014, the project was financed by the Italian Ministry of Agriculture and Forestry with the objectives of increasing transparency on the voluntary carbon market and development best practice guidelines for forest carbon projects in Italy. In 2014, version 1.0 of the Italian FCC was released and officially recognised by the Italian Ministry of Agriculture and Forestry. The FCC is not a certification standard but rather intended to provide guidance and best practice for project developers and carbon credit sellers in the forestry sector. The Italian government aims at establishing a light approach that does not require the development of a registry or other costly infrastructure but that provides guidance to stimulate private sector investment (Brotto 2016).

The Italian FCC establishes requirements to generate and sell carbon credits from forestry activities in Italy through the participation of key actors in the voluntary carbon market.

The code aims at:

- ▶ defining requirements and best practices for the management of voluntary projects for carbon sequestration in the forest sector
- ▶ making the Italian voluntary market more effective and transparent through a public discussion process
- ▶ establishing minimum quality criteria for selling credits in the voluntary carbon market
- ▶ stimulating independent third party quality audits of projects
- ▶ ensuring the environmental and social quality of projects, such as the upgrading of habitats, income diversification of forestry and agricultural enterprises, improvement of landscape and the supply of timber from forests managed in a responsible manner (Nucleo Monitoraggio Carbonio 2014).

c) Project information

For its first phase, the code has identified several types of carbon sequestration projects that are eligible for generating credits. Many of these project types are innovative activities beyond the common and widespread forestry and land management practices, targeting management of agricultural forestry, “out-of-the-forest” activities and green urban or periurban spaces. This includes:

- ▶ improvement of forest management once the increase in absorption / reduction of greenhouse gas emissions;
- ▶ reforestation / afforestation
- ▶ urban forestry
- ▶ creation and management of ecological corridors
- ▶ new long-term wood production
- ▶ production of wood material for long lifecycles
- ▶ Other activities that generate carbon sequestration:
 - ▶ reconstruction of previously drained wetlands
 - ▶ application of biochar in forest soils.

14 Including CREA (Consiglio nazionale per la ricerca in agricoltura e l'analisi dell'economia agraria), TeSAF (University of Padova), DIBAF (Tuscia University), OPS, INEA

Small-scale projects with less than 1,000 t CO₂ eq sequestered annually can form groups and merge into a single area management plan to reduce management, verification and certification costs. As there is no centralised registry to record projects implemented with the help of the FCC, there is currently no overview of project types and numbers that are making use of the FCC methodology.

(d) Methodology / standard

The FCC's methodology was developed in an iterative bottom-up process, including events, discussions in different fora and a technical committee, over two years (from version 0.1 to 1.0) with more than 300 participants. Principles were developed in line with international standards and parameters. The FCC is not a compulsory methodology, but applying the provisions of the Code is seen as an initiative of voluntary self-regulation, supported by a broad consensus of social and business stakeholders involved and based on the best practices developed in other countries. The FCC aims to provide regulatory clarification on the ownership rights of credits and / or the direct and indirect compensation methods of forest and agricultural managers, also in order to prevent double counting and double monetisation of credits that are simultaneously used for compliance and in the voluntary market (Maluccio et al. 2016).

Eligibility and credit ownership

The FCC informs project and programme developers on project admission criteria, documentation and governance, carbon sequestration and potential co-benefits. Project documents must be publicly accessible and include at least information on eligibility (dates, legal aspects, additionality), georeferencing of the project area's boundaries, project management (project registration, monitoring plan, etc.), carbon sequestration benefits (including risk related to non-permanence) and on environmental and social benefits.

The handbook precisely determines any types of activities eligible for generating carbon credits and lists activities that are not eligible in any case as well. It recommends that afforestation and reforestation projects should not take place in areas covered by forest less than 10 years before the project start, in wetlands or in protected areas. As for the issuance of carbon credits, although the FCC does not generate credits itself, it stipulates that carbon credits generated by the project activities belong to the proprietor of the project area, or to the area manager, if authorised by the land owner.

Validation, verification and certification

As for formal admission criteria, the FCC recommends that projects are registered within the first two years after their start, pass validation within two years after registration and that validation is conducted by an accredited certification body and according to at least one independent certification standard of the international voluntary carbon market. The FCC does not provide a validation and verification system, but envisages to work towards establishing general criteria for third party verification of projects. Moreover, it recommends to conduct certification in accordance with international forest management schemes like the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC).

Many project managers prefer internal guidelines for verification, however, costs of external verification are too high for many small-scale projects (Maluccio et al. 2016). The FCC therefore suggests that small-scale projects form cooperatives to make standard certification easier and to collaborate with existing certification such as organic farming (Brotto 2016).

Additionality

The FCC recommends demonstrating the additionality of a project according to a triple test:

- ▶ Legal test: The project must not be provided for by current legislation.
- ▶ Common practice test: The project design goes beyond ordinary, widespread and widely practiced activity (such activities are listed on a 'positive list').
- ▶ Financial test: The project could not have been realised without the expected economic contribution of the carbon credits.

The financial test may be replaced with a **barriers test** to prove that without the project intended at generating carbon credits it would not have been possible to overcome the (technical etc.) barriers.

Sequestration benefits: calculation and monitoring

Each project has to present a monitoring plan before the start of the project, indicating how and with which frequency the amount of carbon sequestered will be measured, which methodology is applied and how double counting risks are addressed. Monitoring reports are due every five years until 90 percent of the project scope has been completed.

The project should be based on adequate and verified methodologies. It should include a description of the **baseline**, i.e. of a scenario that would have occurred in absence of the project, strategies to minimise the risk of **leakage**, estimations of **carbon sequestration** compared to the baseline, the determination of the buffer to reduce the risk of non-permanence and a calculation of the project's net benefit. The methodology must be based on the Intergovernmental Panel on Climate Change (IPCC) guidelines (GPG-LULUCF 2003 and AFOLU 2006) or other internationally recognized standards.

With regard to leakage, projects have to calculate the estimated emissions resulting from land and forest resource use intensification outside the project area that is measurable and directly attributable to the project activities. The project document must also include measures of risk reduction and leakage mitigation. If there is significant risk of leakage (>5 percent of sequestered carbon) the value has to be included in the calculation of the net benefit. Otherwise, if leakage is projected to be below 5 percent, leakage is considered to be zero in the net benefit calculation.

Generation of credits

According to the FCC, credits may only be issued after independent thirdparty verification (ex post credits only). Any entity that owns carbon credits generated from FCC projects may provide declarations on the realised carbon sequestration benefit (only once). Organisations must indicate the amount of emission reductions that were achieved with the help of credits from domestic forestry projects and clearly separate them from international offsets.

Co-benefits

Projects should strive to generate environmental and social net benefits, and take into consideration the overall environmental impact, involving stakeholders from local communities.

(e) National registry and/or project registries

There are six national registries for carbon credits. The FCC strongly recommends project developers to list their project in a registry, but does not give any recommendation in terms of specific registries.

(f) Double counting provisions

The FCC distinguishes between the two double counting types 'double selling' and 'double monetisation', considering the latter to be more problematic for the Italian domestic market.

The FCC tries to avoid double monetisation in the first place by limiting projects to areas that are not used by the national government for the creation of RMUs and counted towards its international obligations. However, it does not exclude these project types. Therefore, the FCC includes guidance on double counting risks, particularly on double selling and on double monetization, including by providing a list with types of activities that are used by the Italian government to fulfil its commitments under the Kyoto Protocol, including forest management, afforestation and reforestation. Any project following FCC needs to apply transparent communication on the risks linked to double counting. How exactly this is to be taken into account is not further clarified in the FCC. Given the small market size double counting is not considered an actual problem as long as it is accompanied by good communication (Brotto 2016).

In order to avoid double selling, projects need to be registered as stated in point 2.1 of the FCC. The project area must be prescribed in a registry, including at least information on project name, location, size, project start and duration, carbon sequestration potential (including baseline and timeframe), ownership of the carbon credits and buyer of the credits.

4.4.2 Integration of the initiative in the pre-2020 framework

Theoretically, as long as Italy does not guarantee the cancellation of excess RMUs, the government could sell these, raising issues of double monetisation. But in practice, this does not occur.

The Italian forests play an important role in achieving Italy's Kyoto target. Since 2008, Italy uses carbon credits generated by forestry activities towards compliance with the Kyoto Protocol. Between 1990 and 2009, the total removal of GHGs in CO₂ equivalent increased by more than 53 percent (Savy et al. 2011). This shows the great potential of the LULUCF sector also for the voluntary carbon market.

For the Kyoto Protocol's first commitment period, Italy planned to realize carbon sequestration amounting to 10.2 M t CO₂ eq annually through sinks (forestry and agriculture), corresponding to 11 percent of its total reduction commitment (Tedeschi and Lumicisi 2006). For its reporting on forest management under Article 3.4 of the Kyoto Protocol Italy applies a very broad definition of managed forests, regarding all forest in Italy as managed (Gasparini et al. 2010). In addition to the already broad definition of managed forests, in 2015, Italy decided to voluntarily report on cropland and grassland management as activities under article 3.4 of the Kyoto Protocol. Thus, there is a large volume of carbon sequestration that must not be counted towards Italy's Kyoto target.

In 2006, Italy was assigned a cap of 0.18 M t CO₂ eq of carbon sequestration per year that can be credited with RMUs, but received a higher cap of 2.78 M t CO₂ eq/year upon request to the Subsidiary Body for Scientific and Technological Advice (UNFCCC 2014c). In 2009 alone, 94.7 M t of CO₂ were removed from the atmosphere with LULUCF activities, mostly forest land, grassland and cropland – a volume greatly exceeding the allowed cap. In consequence, voluntary domestic offsets operate outside of the realm of RMUs and double monetization will not occur in practice.

Likewise, if credits generated through FCC projects are used by companies to claim their voluntary emission reductions, double claiming could theoretically occur, as the same reductions are counted towards the national target. As long as companies do not have a legally binding reduction target and communication is transparent, the environmental integrity of the units is not impaired. Moreover, in practice, just like in the case of double monetization, double claiming will not occur because Italy vastly exceeds its LULUCF cap.

Table 10: Safeguards to avoid double counting and implications for environmental integrity in the Codice Forestale del Carbonio

| Type of double counting | Safeguards to avoid double counting | Implications for environmental integrity/ credibility of the scheme |
|----------------------------|---|---|
| Double selling | Recommendation to list project, credit ownership and buyer of credit in a registry. | If multiple registries are used, it is more difficult to keep track of transactions (risk of double selling). |
| Double issuance | Registries should indicate project name, location, size, project start and duration. | Indication of project location helps to avoid double issuance of credits for one project area. |
| Double claiming | Double counting list discloses sectors at risk of double claiming, but no proposed solutions. | Unclear, as no rigorous rules are in place. In reality, LULUCF emission removals are at a level far beyond the cap of what can be counted towards Kyoto. Therefore in practice, no double monetisation can take place as long as Kyoto applies. |
| Double monetisation | Double counting list discloses sectors at risk of double monetisation, but no proposed solutions. | Unclear, as no rigorous rules are in place – but double monetisation could occur in theory. In reality, LULUCF emission removals are at a level far beyond the cap of what can be counted towards Kyoto. Therefore in practice, no double monetisation can take place as long as Kyoto applies. |

4.5 Spain

4.5.1 Overview of the initiative

Spain has two domestic offset mechanisms that are both administered by the Ministry of Agriculture, Food and Environment (MAGRAMA – Ministerio de Agricultura, Alimentación y Medio Ambiente).


Under the current EU Effort Sharing Decision, Spain must reduce GHG emissions within sectors that are not included in the EU ETS by 10 percent below 2005 levels by 2020. To support this goal, in 2011, Spain introduced the “Fondo de Carbono para una Economía Sostenible (FES-CO₂)”, the Carbon Fund for a Sustainable Economy. Under the FES-CO₂, the government acquires (actually it is the only entitled buyer) Verified Emission Reductions from domestic climate projects in order to promote private actions to reduce emissions in non-ETS sectors. The initiative aims at mobilizing resources and eliminating private investment barriers to foster a pathway of transformation of the Spanish economy towards a low carbon and climate resilient model. It provides financial support to initiatives that would not be financially viable otherwise by purchasing reductions in the first four years of the project. Apart from its focus on domestic carbon credits the fund also invests in international credits generated under the Kyoto mechanisms or any other credit type. Participation in the mechanism is purely voluntary, but the emission reductions achieved through the FES-CO₂ are counted towards Spain’s reduction target, contributing to its goal under the Effort Sharing Decision as well as to the overall Kyoto target. Projects do not enter the inventory directly, but their emission reductions indirectly do. To be eligible, projects have to reduce emissions covered by the inventory (but that are outside of the EU ETS). Moreover, projects need to follow a methodology in line with inventory requirements.

Another Spanish initiative is the voluntary registry for (1) carbon footprint, (2) compensation and (3) carbon sequestration projects (Registro de huella de carbono, compensación y proyectos de absorción – RHC). Under this mechanism, companies and organisations that have no compliance obligations under the Kyoto Protocol or EU ETS but wish to reduce their carbon footprint can voluntarily calculate their emissions and establish an emission reduction plan. They may then compensate their carbon footprint or parts of it via carbon sink forestry projects in Spain that have registered with the scheme. The registry also certifies the carbon sequestration realised within these LULUCF projects. While only 27 percent of the Spanish territory was forestry area in 1990, this number increased to almost 37 percent in 2015, indicating the vast carbon sequestration potential of Spain (World Bank 2015).

The initiative aims at increasing climate action in the private sector to contribute to a reduction of emissions in non-ETS sectors. In November 2015, the Spanish government allocated 5 million Euros to promote the reduction of carbon footprints on the basis of the emission reduction plans defined in the voluntary registry.

(a) Market information

Table 11: Spain – FES-CO₂ / RHC

| Spain – FES-CO ₂ / RHC | | |
|--|--|---|
| Operational since: 2012 (FES-CO ₂) 2014 (RHC) | Government involvement: Funding and implementing body (Ministry of Agriculture, Food and Environment (MAGRAMA)) |  |
| Administered by: MAGRAMA | Agency type: National Ministry | |
| Scope: FES-CO ₂ : 189 projects between 2012 and 2015 RHC: 10 projects registered / 1 in preparation; 20,800 t CO ₂ eq | Average certificate price: FES-CO ₂ : 9.7 €/t CO ₂ eq (as of October 2016) RHC: not known | Project types: FES-CO ₂ : Transport, agriculture, housing, waste (non-EU ETS sectors) RHC: Forestry |
| Legal context: Voluntary | Tradability: No (FES-CO ₂) Yes (RHC) | Type of standard: Project-based mechanism |

| | | |
|---|--|---|
| Project area(s): Country-wide | Buyer: MAGRAMA (FES-CO ₂) Companies without reduction obligations (RHC) | Type of units: FES-CO ₂ : ex post RHC: mostly ex post credits (ex ante limited to 20 %) |
| Short description There are two major crediting schemes in Spain: (1) The “Fondo de Carbono para una Economía Sostenible (FES-CO ₂)” is a voluntary scheme to promote private actions to reduce emissions in non-EU ETS sectors. The scheme is exclusively domestic and does not allow for credits to be traded outside of Spain. (2) The voluntary carbon footprint registry (Registro de huella de carbono, compensación y proyectos de absorción – RHC) generates credits from voluntary projects in the forestry and land use sector. These credits can be purchased by companies wishing to voluntarily reduce their carbon footprint. | | |

(b) Governance and role of government

The Spanish Ministry of Agriculture, Food and Environment has developed and manages both initiatives: Fondo de Carbono para una Economía Sostenible (FES-CO₂) and the Registro de huella de carbono, compensación y proyectos de absorción (RHC). It takes a strong regulative role within the voluntary carbon market because the GHG emission reductions and removals are counted towards Spain’s international reduction commitments. The Spanish government thereby indirectly endorses the emission reductions or removals and needs a strong methodological and regulatory framework to guarantee the integrity of the units.

In the case of FES-CO₂ the government takes an even stronger role as it purchases credits from corporate activities to reduce greenhouse gas emissions as an instrument to foster a low-carbon and climate resilient economic development within the private sector. With the government acquiring the verified emission reductions, companies are less dependent on demand for credits on the voluntary market, making it financially more reliable and easier for them to plan. On the other hand, the government facilitates voluntary compensation of carbon emissions with sequestration projects through the RHC registry, as it brings together project developers and companies wishing to offset their carbon footprint.

(c) Project information

Registro de Huella de Carbono (RHC):

Under the first pillar of the RHC more than 200 organisations have registered more than 280 carbon footprints. For the implementation of the emission reduction measures defined in their action plans, companies can receive up to 15 percent of the necessary investment or a maximum of 150,000 Euros (MAGRAMA 2015a). Companies can choose whether they only want to calculate their carbon footprint or calculate and reduce or calculate and compensate (or all three) their emissions, as the name “calculo, reduzco y compenso” suggests (“I calculate, reduce and compensate”). By June 2016, there were three companies in the register that claimed to calculate, reduce and compensate emissions, whilst another three had registered under calculate and compensate.

The second pillar of the RHC is the section for the registration of domestic sequestration projects. Domestic offset projects within the forestry sector can register for having their GHG removals verified and made available for voluntary compensation. By June 2016, ten projects had successfully registered as sequestration projects under RHC with an expected volume of more than 19,000 t CO₂ eq over the lifetime of the project, which usually lasts 30 or 40 years. The project activities include afforestation on land that was formerly unused, scrubland, agricultural land or cropland (MAGRAMA 2016a).

Finally, the third section provides an overview of all offsetting activities realised by companies that have registered their carbon footprint, either through the domestic sequestration projects of the scheme itself or through third-party emission reduction projects recognised by MAGRAMA. Companies are free to choose which share of their carbon emissions they want to compensate.

FES-CO₂:

Project developers that plan emission reduction activities can apply for funding under the FES-CO₂. The so-called “proyectos clima” must be located within Spain and developed in one of the “diffuse” sectors not included in the EU ETS. These include transport, agriculture, housing, non-ETS industries, fluorinated GHGs and waste. The scheme does not include carbon sink projects.

The first call for projects was held in 2012, with a funding volume of ten million euros (37 pilot projects selected from 194 applicants), increasing to 15 million from 2013 to 2015 and to 20 million in 2016 (Rico 2016). An overall 189 projects were implemented with the support of FES-CO₂ between 2012 and 2015, almost 40 percent of which were residential projects and another 25 percent agricultural activities (MAGRAMA 2016b).

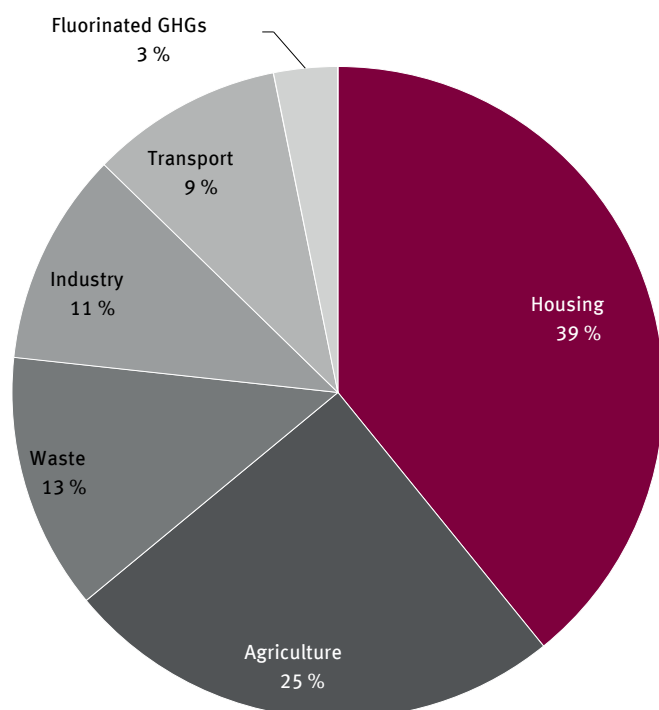


Figure 15: Share of FES-CO₂ project types from 2012 to 2015

Table 12: Overview of FES-CO₂ project types from 2012 to 2015 in absolute numbers¹⁵

| | 2012 | 2013 | 2014 | 2015 | TOTAL |
|------------------|-----------|-----------|-----------|-----------|------------|
| Agriculture | 9 | 14 | 7 | 17 | 47 |
| Housing | 19 | 21 | 15 | 19 | 74 |
| Waste | 4 | 5 | 6 | 9 | 24 |
| Industry | 2 | 3 | 8 | 7 | 20 |
| Transport | 3 | 5 | 5 | 5 | 18 |
| Fluorinated GHGs | - | - | 1 | 5 | 6 |
| Total | 37 | 48 | 42 | 62 | 189 |

(d) Methodology / standard

Registro de Huella de Carbono (RHC):

Methodology: The Ministry of the Environment does not prescribe a specific methodology, but recommends using an internationally acknowledged method for calculating a company's carbon footprint, including provisions of relevance, integrity, consistency, precision and transparency (Magrama 2015b). For carbon sequestration projects there are both guidelines for calculating ex-ante carbon sequestration benefits (Magrama 2014) and guidelines for project developers (Magrama and OECC 2015).

Eligibility: There are two types of methodologies for the RHC at the moment. Type A includes reforestation with land use change and refers to the transformation of a land area that was deforested or not forest land at least until the end of 1989 (e.g. agricultural, urban, pastoral or scrubland).

¹⁵ The call for FES-CO₂ projects 2016 was still running at the time of conclusion of this report.

This means that afforestation or reforestation projects need to concern land that was non-forest or converted to non-forest before 1990. This project typology is identical with the afforestation and reforestation activities defined in the Kyoto Protocol (Magrama and OECC 2015).

Type B projects include activities in burned forest zone aimed at restoration of the existing forest. There have not been any projects under methodology B yet. The project type falls under forestry management activities of the Kyoto Protocol, as it does not involve land use change (Magrama and OECC 2015). Activities under both project types must not have started before 2013.

Calculation of carbon sequestration: The Spanish Ministry of the Environment offers a simplified carbon sequestration calculation methodology that is based on projections of carbon sequestration potentials throughout Spain. At the time of registration of a project, ex-ante calculations are applied that are later replaced with ex post calculations of carbon sequestration.

Additionality: There are no specific guidelines for additionality testing of sequestration projects under the RHC. Both of the eligible project types fall under the accounting obligations of the Kyoto Protocol, making projects non-additional in terms of policy additionality.

Permanence and buffer: Sequestration projects must exhibit a management plan explaining the planned activities. Credits are mostly issued ex-post, but project developers may sell up to 20 percent of the (future) carbon sequestration expected throughout the permanence period upfront. For reasons of permanence, projects must guarantee to maintain carbon stocks for a period of at least 30 years. To counter the risk of non-permanence, 10 percent of the carbon credits are allocated to a buffer account (Magrama 2016c).

Validation, verification and certification: Project developers must present a management plan, indicating the exact location of the project, how they intend to guarantee permanence of the forest area, which ecosystem services will be generated beyond the carbon sequestration and which risk management measures are in place. This is verified by the Ministry of the Environment and, once approved, registered in the RHC's section for carbon sequestration projects.

Every 5 years progress reports need to be prepared in order to calculate the level of actual carbon sequestration realised throughout the project period (ex post calculation). To do so, a forestry inventory must be provided, including the different species, size of the territory, height and diameter of the trees, which is certified by a third-person external auditor.

FES-CO₂:

Methodology: Currently, there are six categories of methodologies (each containing several methodologies) for ex-ante calculation of expected emission reductions developed by FES-CO₂ for the six project types agriculture, buildings, industry, waste, transport and fluorinated gases (Magrama 2016d). In addition, the FES-CO₂ provides 16 methodologies for ex-post calculation of emission reductions (Magrama 2016e). If none of the methodologies is applicable to a specific project type, the project developer may alternatively use existing methodology from the UNFCCC, the IPCC or other internationally acknowledged methodologies, or a methodology specifically developed for the project.

Eligibility and additionality: There are four main selection criteria for projects in the FES-CO₂:

- ▶ **Economic efficiency:** The abatement cost must be cheaper than other available alternatives (in terms of € / t CO₂)
- ▶ **Emission reduction potential:** The higher the emission reduction potential, the better chances projects have to be selected.
- ▶ **Long-term financial sustainability:** The financial flows generated with the projects should guarantee viability in the long run. The initial financial support should help overcome investment barriers but the project should be self-sufficient and remain operative after that.
- ▶ **Additionality:** Defined as financial additionality, this criterion requires prove that the project is only financially viable because of the financial support generated from selling the carbon credits. Project developers must prove that the economic, technological or any other barriers that might have impeded the project implementation could only be overcome with the revenues received through FES-CO₂. Additionality can also be demonstrated by proving the existence of technological barriers that would have impeded the development of the project. Non-additionality is a criterion for exclusion (OECC 2015).

- **Co-Benefits:** The selection criteria also value whether a project considers economic, environmental and social benefits beyond emissions.

Furthermore, all projects must be developed in sectors that are not included in the EU ETS.

Validation, verification and certification: Project developers first need to pitch their project idea to the Ministry of the Environment, followed by a preselection of projects by the Ministry. Preselected companies must then present a more detailed project document with an estimation of the expected emissions reduction and a detailed description of how to achieve these reductions. After an assessment of these project documents, a number of projects are finally selected for funding by the FES-CO₂. Once the project has been selected and formally approved, a contract is set up to guarantee project developers the purchase of emission reductions via the FES-CO₂.

Verifications must be conducted at least once a year and submitted to MAGRAMA together with the monitoring reports. The goal of the verification report is to confirm that project activities have been developed in accordance with the project document and to confirm the real emission reductions. The reports are conducted by an independent third-party entity approved by the FES-CO₂.

After successful verification by an independent entity, the project developer receives the payment for the emission reductions by the Ministry of the Environment.

(e) National registry and/or project registries

RHC: The voluntary registry is, as its name suggests, a registry in itself. It lists all company carbon footprints voluntarily submitted and all sequestration projects that wish to sell carbon credits for voluntary offsetting. The registry documents each sequestration project together with a description, starting point, land area, period of permanence and the expected sequestration benefits, indicating how much of the sequestered CO₂ is allocated to a buffer account, how much has already been used for compensation and how much is still available for compensation (Magrama 2016a).

Regarding the companies that have registered in the RHC, information is provided on the scope of intended action (calculo, reduzco, compenso), the carbon footprint and the amount of GHG emissions compensated, if any (Magrama 2016f).

FES-CO₂: There is no central registry for the projects selected under FES-CO₂. MAGRAMA provides lists of all projects that were selected under each of the annual calls but there is no overview of how many units of CO₂ eq have been generated by each project (Magrama 2016g). However, as credits are purchased exclusively by the Spanish government, a registry is less relevant because double selling and double issuance are not possible with only one potential buyer involved.

(f) Double counting provisions

RHC: The regulations for the Spanish carbon registry refer to double counting in the sense that compensation projects within the registry may not be used to fulfil compliance obligations under the EU ETS (Real Decreto 163/2014). This does not, however, completely exclude double claiming and double monetisation, as the two project types are part of the Spanish accounting obligations under the Kyoto Protocol. Moreover, the eligible project activities are not part of the ETS sectors anyway.

There is one central registry for carbon sequestration projects, indicating the amount of carbon credits expected over the project period, available for sale and already retired. However, carbon credits do not have serial numbers, or these are not publicly available, and transactions of the units are not listed in the registry. This makes double selling, although very unlikely, a potential threat that could need better safeguards. Linking the registry with that of other voluntary carbon standards could be an important step in this regard.

FES-CO₂: The crediting mechanism FES-CO₂ claims to avoid double counting by excluding projects under the scope of the EU ETS (Magrama 2015c). The mechanism prescribes, for example, that projects generating energy from renewable sources or that increase energy efficiency are not eligible. Projects involving an energy component may apply but can only receive funding for the parts not related to electricity: A biodigestion facility that avoids methane emissions and uses the generated biogas for energy can only apply for the part of methane reduction. Eligible projects do, however, fall within the scope of Spain's reduction obligations under the EU Effort Sharing Decision, which will be discussed in the next section.

Besides this broad definition of double counting there are no other regulations to avoid double claiming and double monetisation.

4.5.2 Integration of the initiative in the pre-2020 framework

Spain is an Annex I Party to the Kyoto Protocol and has assumed binding emission targets for the first and the second commitment period. Whereas between 2008 and 2012, the Spanish target was to limit growth of GHG emissions to 15 percent compared to 1990 levels, the second commitment period from 2013 to 2020 envisages an EU-wide reduction of emissions by 20 percent. Apart from its participation in the EU ETS, Spain contributes to this target by committing to reduce emissions in non-EU ETS sectors by 10 percent.

In the LULUCF sector, Spain has selected cropland management as a voluntary reporting category under Article 3.4 of the Kyoto Protocol (Magrama 2016h). Simultaneously to the inclusion of forest management as a mandatory reporting category, the amount of tradable credits from forest management was limited to 3.5 percent of 1990 emissions following the 2011 Durban agreement on LULUCF (Ellison et al. 2014). Both project types of the voluntary registry, reforestation with land use change and restoration of existing forests, are mandatory reporting categories according to articles 3.3 (type A) and 3.4 (type B) of the Kyoto Protocol, and must therefore be listed in Spain's national inventory and counted towards its Kyoto target (Magrama and OECC 2015).

For the voluntary registry RHC this implies that all type A (afforestation and reforestation) and type B projects (forest management) are at risk of double counting. Double claiming can be an issue for all sequestration projects within the scope of the RHC, as Spain must account for all GHG emissions or removals from afforestation, reforestation and forest management. The registry is open for any company that wishes to voluntarily compensate its carbon footprint, but excludes companies with reduction obligations. This prevents situations in which the same unit is claimed twice towards the achievement of a commitment target, thus undermining its environmental integrity. However, double claiming may still occur between an entity that voluntarily compensates emissions and the government, and voluntary reductions within the scope of the RHC contribute to the national target. Transparent communication is therefore important.

Furthermore, double monetisation can theoretically occur. Unless Spain commits to not selling excess RMUs and AAUs to other countries, GHG removals generated from RHC projects could free up RMUs or AAUs that could be purchased by another Annex B country and, thus, be double monetised. However, in practice, double monetisation in the area of forest management, or type B projects, does not occur as Spain has already reached the limit of its cap (of carbon sequestration per year that can be credited with RMUs) on tradable credits from forest management without including RHC projects. This will be similarly so in the context of a new Effort Sharing Regulation post 2020: The cap is the proposed no-debit rule, altered by flexibility mechanisms. The maximum flexibility would be at 1.3 percent, less than the current RMU crediting limit. The sequestration caused by the voluntary scheme is expected to be far beyond the cap of the ESR.

The situation is slightly different with regard to the carbon fund FES-CO₂. Participation in the scheme is voluntary for companies but projects are intended to contribute to the Spanish ESD target. So at the moment, units are not actually traded on the carbon market for compensation but used to reduce emissions within the non-ETS sectors and help the Spanish government achieve its reduction target. Double claiming is therefore possible but concerns only one party with reduction commitments (the government) and this use is communicated transparently. It is thus environmentally integral. The project categories agriculture, housing, waste, industry, transport and fluorinated GHGs are not only counted towards the ESD target but also part of the commitments under the Kyoto Protocol (Umweltbundesamt 2015) – which would potentially put them at risk of double monetisation. However, as long as the units are not used by companies, institutions or individuals in Spain but only by the national government, and as long as they are not sold to other Annex I countries, double monetisation does not occur.

Table 13: Safeguards to avoid double counting and implications for environmental integrity in the FES-CO₂ and RHC

| Type of double counting | Safeguards to avoid double counting | | Implications for environmental integrity/credibility of the scheme |
|-------------------------|--|--|--|
| Double selling | RHC | | |
| | Publicly available registry, but transactions not accessible. | | Double selling very unlikely, but possible. |
| | FES-CO ₂ | | |
| | <i>Not possible, as long as units are only purchased by the government.</i> | | |
| Double issuance | RHC | | |
| | Registry indicates project areas and activities. | | Double issuance unlikely, but linking registry to others would further decrease the risk. |
| | FES-CO ₂ | | |
| | No safeguards in place. | | Risk of double issuance, but unlikely as project details are available to the public. |
| Double claiming | RHC | | |
| | Double claiming rules are restricted to the European level, but no safeguards vis-à-vis the Kyoto framework (since CP2 has not entered into force, this might not be a problem). | | Environmental integrity could be at risk if KP2 enters into force. |
| | FES-CO ₂ | | |
| | Occurs with only one party with commitments and is communicated transparently. Does not allow trading outside of Spain. | | Environmental integrity is preserved. |
| Double monetisation | RHC | | |
| | Possible; however, projects within the registry may not be used to fulfil compliance obligations under the EU ETS. | | Environmental integrity could be at risk if CP2 enters into force. With actual removals beyond ESD (or in the future, ESR) cap, there is in practice no problem. |
| | FES-CO ₂ | | |
| | Does not allow trading outside of Spain. | | Environmental integrity could be at risk if CP2 enters into force. As long as they are not sold to other Annex I countries, double monetisation does not occur. |

4.6 Switzerland

4.6.1 Overview of the initiative

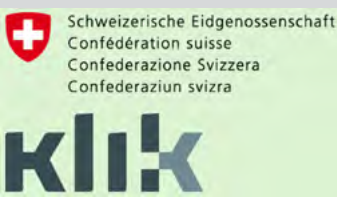
In its CO₂ Act, Switzerland commits to reducing its greenhouse gas emissions by 20 percent to 40 million t CO₂ eq by the year 2020 (as per January 2013). Several instruments and policies have been implemented to achieve this target, including a Swiss ETS, a CO₂ levy on fossil fuels and a domestic offset scheme. Within the domestic offset scheme, importers or producers of fossil motor fuels (with a volume of more than 1,000 t CO₂), as well as operators of fossil fuel power plants, are legally obliged to compensate part of the emissions resulting from the use of motor fuels, amounting to 1.5 million t CO₂ eq by 2020, an equivalent of 15 percent of the national reduction target.

By 2020, mineral oil companies have to offset 10 percent of all traffic-related emissions, at annually increasing rates starting with 2 percent (or 0.3 M t CO₂ eq) in 2014 and aiming for an accumulated volume of 6.5 M t CO₂ eq between 2013 and 2020 (Foundation KliK 2015). Fossil motor fuel companies must achieve the compensation through domestic measures only, whereas fossil thermal power plants have to offset 50 percent of their emissions domestically (BAFU 2015a). Companies unable to fulfil their offset obligations through Swiss projects must submit certificates from international projects and pay a penalty of CHF 160 per t CO₂ eq not offset within Switzerland. Fuel importers may compensate either by purchasing credits from domestic Swiss projects or by implementing inhouse carbon reduction projects. If those obliged to compensate choose to initiate projects themselves, they do not receive tradable attestations but the emission reductions are directly counted against their reduction obligations.

Funding for these projects comes from a surcharge that fuel importers may add to the fuel price (max. 5 cents/litre) and that is expected to collect EUR 700 million over the period of the offset scheme (Gliesche 2015).

(a) Market information

Table 14: Switzerland – Carbon offset obligation for motor fuel importers

| Switzerland – Carbon offset obligation for motor fuel importers | | |
|--|--|--|
| Operational since: 2013 | Government involvement: Yes, implementing agency |  |
| Administered by: Federal Office for the Environment FOEN (BAFU) | Agency type: National Government Agency | |
| Scope: 78 projects registered, i.e. validated (Apr 2016) Emission reduction of ~0.3 M t CO ₂ eq in 2014 Emission reduction of ~0.014 M t CO ₂ eq in 2013 (BAFU 2016a) | Average certificate price: CHF ~95 CHF/t CO ₂ eq (87 €/t CO ₂ eq) (evaluated 2016) | Project types: Energy efficiency Renewable energies Fuel switching/ substitution Transport Reduction of methane, fluorinated gases or nitrous oxides, and N ₂ O Biological sequestration |
| Legal context: Legal obligation (CO ₂ Act) | Tradability: Nationally only; limited to companies participating in the scheme | Type of standard: Projects and programmes |
| Project area(s): Nation-wide | Buyers: Importers of fossil fuels and fossil thermal plants | Type of units: Swiss attestations (CHA) |
| Short description The Swiss offset scheme is a mandatory mechanism for fossil fuel importers to compensate for emissions resulting from the use of motor fuels. It is an exclusively domestic scheme that does not allow for credits to be traded outside Switzerland. | | |

(b) Governance and role of government

The Swiss domestic offset scheme is a key instrument of compliance with the national emission reduction target that Switzerland has committed itself to. The mechanism was developed by the Federal Office for the Environment (FOEN), which is the enforcing authority that oversees the scheme, approves new projects and issues attestations for the emission reductions. In contrast to the other cases examined in this study, Switzerland uses domestic offsets for compliance with the GHG emission reduction target it has committed itself to. All projects first need to be approved by the FOEN and the Swiss Federal Office of Energy (SFOE) before they can be registered. FOEN and SFOE together operate an administrative office for compensation, which is the central contact point for project developers, companies with compensation obligations and project or programme validators and verifiers.

The FOEN is also responsible for accreditation of validators and verifiers and for issuance of credits, so-called Swiss Attestations (CHA). CHAs may be purchased by companies participating in the compliance market, such as fossil fuel thermal power plants or fuel importers. They are not internationally tradable, nor are they recognized outside Switzerland.

The Swiss CO₂ Law allows mineral oil companies to form carbon offset groupings. Therefore, the Swiss Petroleum Association, representing 41 oil companies, in 2013 established the 'Foundation for Climate Protection and Carbon Offset' (Stiftung Klimaschutz und CO₂-Kompensation – KliK), which coordinates and develops the majority of the domestic projects and programmes aimed at the reduction and removal of GHG emissions. The KliK Foundation receives funding from most motor fuel companies to meet compensation obligations on their behalf. As supply of domestic carbon offset projects at the time the CO₂ law was established did not meet the newly created demand, the Foundation's purpose was, and is, to leverage supply in an efficient and more effective manner than each company would have been able to do individually.

(c) Project information

Projects and programmes from eight different project types are eligible for generating CHAs for the domestic offset scheme, including renewable energies, energy efficiency, transport, fuel switching and substitution, avoidance of methane, reduction of fluorinated gases or nitrous oxides, reduction of N₂O and biological sequestration (only for carbon sequestration in wood products). These are further differentiated into 16 categories (BAFU 2016b).

As of April 2016, 78 projects and programmes have been registered under the Swiss domestic offset scheme (which are already validated, as the Swiss scheme requires a validation report for approval by the FOEN). Half of these pertain to the project type 'heat from biomass' (39 projects), together projected to generate 0.83 M t CO₂ eq between 2013 and 2020, which would correspond to almost 14 percent of the overall emission reduction volume (BAFU 2016c). Other major project types are industrial waste heat, methane reduction and transport. The largest projected volume can be attributed to a biological sequestration project that is expected to deliver 0.83 M t CO₂ eq alone.

Several projects from one sector with similar focus that use the same technologies can be pooled as programmes to be implemented more efficiently. More than ten programmes in the sectors transportation, businesses, buildings and agriculture have been registered so far.

Prices for CHAs are relatively high with CHF 95 CHF/t CO₂ eq (€ 87/t CO₂ eq) (evaluanda 2016). In contrast to voluntary domestic offset schemes, the high prices are less challenging for the Swiss mechanism, as fossil fuel importers are legally obliged to buy domestic offsets and the penalty for non-compliance is still higher with CHF 160 / t CO₂ eq.

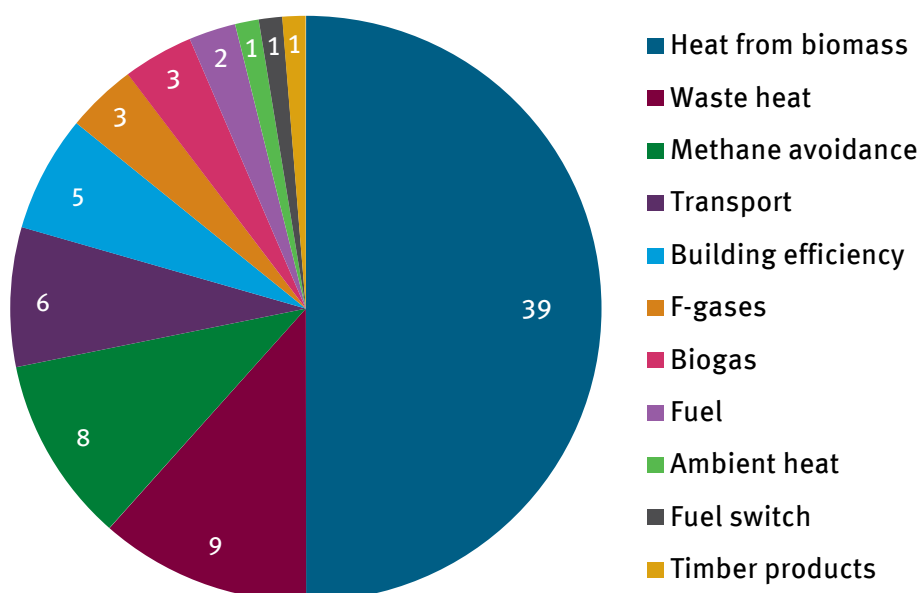


Figure 16: Number of registered projects and programmes according to the type of project under the Swiss domestic offset scheme

(d) Methodology / standard

Development of methodology

Projects and programmes under the Swiss carbon offset scheme are approved by the Administrative Office for Compensation, which sets the rules and provides guidance for project developers. The FOEN has developed the domestic offset scheme's methodology and does not make use of external independent quality standards. Together with an extensive manual explaining all steps within the project development and implementation process, it provides manuals on standard methodology for different project types, including modal shift, landfill gas and agricultural biogas facilities (see: FOEN 2015). Guidelines for landfill gas projects and for modal shift projects are based on CDM methodology. The handbook on project and programme development and implementation establishes the rules for registration, calculation of expected emission reductions, additionality, validation, monitoring and verification. It does not consider any co-benefits beyond carbon sequestration or emission reduction though. A revised second edition of the handbook was released in 2015, after its first publication in 2013.

Moreover, the FOEN provides guidance on requirements for accreditation of validators and verifiers, and a handbook for validators and verifiers. It also publishes an overview of the fees project developers need to pay for the assessment of projects assessed and for the issuance of attestations by the FOEN (FOEN 2015).

Validation, monitoring and verification

Project developers first need to have their project or programme validated by a validation authority approved by the FOEN. As of April 2016, there were ten validators and verifiers approved by the FOEN (BAFU 2016b). The external validators conduct an independent assessment of projects and programmes and the expected emission reductions resulting from them, and draft a validation report. This report together with a project proposal is then submitted to the FOEN for approval. The Swiss scheme does not make use of independent quality standards but has its own methodology.

Throughout the project or programme, monitoring reports have to be drafted to prove progress and measure the actual reduction or removal of GHG emissions. Monitoring starts with the beginning of the project or with its impact and must be done for each year of the project duration. Emission reductions have to be accounted for on an annual basis within the monitoring report.

The monitoring reports and the data on emission reduction from the monitoring period serve as a basis for the verification report by an independent external entity approved by the FOEN. Verification and validation must not be conducted by the same entity.

After successful verification the FOEN issues the number of attestations that have been measured and verified throughout the project or programme period. Attestations are attributed to the KliK Foundation or directly to the project developer.

Additionality tests

Article 10 of the Swiss CO₂ Regulation states that the environmental value of emission reductions is completely covered by the issuance of attestations and that projects do not receive attestations if the environmental value has already been monetized otherwise (Bundesrat 2015).

Emission reduction projects may be financially supported by other policies and programmes beyond the issuance of attestations, such as subsidies for the promotion of renewable energies and energy efficiency or any funding by a Swiss canton or a municipality, as long as they avoid double counting. To ensure this, projects or programmes that receive non-refundable payments beyond the expected revenues from CHAs have to divide the achieved emission reductions (“Wirkungsaufteilung”) if the public body that issued the financial support wants to claim emission reductions. In such cases, the FOEN only issues attestations for parts of the emission reductions from the respective projects or programmes. The exact regulations for different scenarios in which a project is funded twice are explained in the project and programme manual (chapter 2.6). The FOEN also provides an Excel sheet to calculate the share of emission reductions for which it issues attestation and which part is counted against the funding entity’s reduction target.

The FOEN issues certificates for voluntary measures that “go beyond legal requirements and are not already otherwise supported”, constituting the basis for policy additionality. As a general requirement, projects and programmes are only eligible if they could not have been implemented or would not have been economically efficient without the revenues from the sale of emission reduction certificates (BAFU 2015b). As part of the validation, the applicant must prove the direct causal relation between the revenues and the emission reduction or removal, or the financial additionality of the project or programme. To do so, a reference scenario must be established, on the basis of which a profitability analysis is undertaken, proving that the project or programme could not have been implemented without the additional revenue. Financial additionality can be demonstrated through a cost analysis, comparing a reference scenario with the project scenario, or through a benchmark analysis.

If additionality cannot sufficiently be established through the profitability analysis alone, the applicant can conduct a barriers analysis to demonstrate that the revenues generated with the sale of attestations is the critical element in removing major economic or technical barriers that would otherwise impede the project or programme (BAFU 2015b). Validators are also requested to review whether the project or programme is conforming with common practice. This test aims at identifying whether similar projects and programmes, e.g. in other parts of Switzerland or in neighbouring countries, could be implemented despite financial and other barriers. If this is the case, the validator needs to explain why the project could still not be implemented in these specific circumstances, despite similar preconditions to successful projects.

As a recent evaluation showed, the administrative efforts were perceived as a major obstacle particularly for smaller projects. The FOEN therefore aims at developing methodologies for proving additionality of different technologies to shift from a projectspecific to a technology-specific testing that reduces transaction costs (Gliesche 2016). However, these are not expected to be ready for use before the new CO₂ law enter into force in 2020.

(e) National registry and/or project registries

In case of approval by the FOEN, projects and programmes are first listed in an internal database for administrative purposes, which is not publicly accessible. However, the FOEN regularly publishes a list of all registered and validated projects, including expected and realised emission reduction benefits, which can be downloaded from its website. Once the attestations are issued, they are listed in the Swiss Emissions Trading Registry and directly administered by their owners.

As the emissions reductions achieved by the fossil fuel companies are mandatory activities that should contribute to Switzerland’s international emission reduction pledge, they are listed in the same registry that is used by companies participating in the emissions trading scheme. The registry documents the issuance, holding, transfer, acquisition, cancellation and surrender of all units and any changes to ownership and status of attestations.

(f) Double counting provisions

The FOEN defines double counting as “multiple accounting of the same emission reductions” (BAFU 2015b), which can occur where emission reductions that received attestations are also monetized by other mechanisms. According to the FOEN manual for projects and programmes, monitoring reports have to demonstrate that measures have been taken to avoid double counting.

Double claiming: As credits are issued in and must stay in Switzerland, there is no risk of double claiming between Switzerland and another country, as companies with emission reduction obligations outside Switzerland cannot purchase CHAs. But double claiming does occur in the sense that both companies and the government can claim the emission reductions of a given project. This type of double claiming is not problematic as long as communication about it is transparent. As the abovementioned law details the purpose of these offset projects, this is clearly the case.

Double monetisation as defined in the previous chapter cannot occur in the Swiss case, as it is not a voluntary scheme, which is why neither can voluntary credits be issued for which AAUs would need to be cancelled to prevent double monetization, nor is there a risk of voluntary action indirectly contributing to the national target and thus ‘reducing’ government action. To avoid **double selling** and **double issuance**, emission reductions are centrally registered and publicly traceable in the Swiss Emissions Trading Registry.

4.6.2 Integration of the initiative in the pre-2020 framework

The Swiss domestic offset scheme is different from other case studies examined in this paper in that it is not a voluntary mechanism, which has significant impacts on the way it relates to the current international framework. As the GHG emission reductions realised through domestic offset projects in Switzerland are counted towards the national climate target, the scheme faces less restrictions with regard to the sectors in which projects and programmes can be implemented. In theory, any sector that is eligible for compliance could also be suitable for the domestic offset scheme without risking double claiming or double monetisation. In general, the risk of double counting is much lower than for voluntary domestic offset schemes, as double monetisation is not a problem and the risk of double claiming is substantially reduced because the Swiss government counts reductions against its pledge anyway.

Credits issued under the Swiss offset scheme are not linked with AAUs, which is not problematic with regard to double counting as long as they are used for compliance only. However, in theory, credits may also be purchased by actors without emission reduction obligations, as the Emissions Trading Registry is open to any buyer. So far, the Swiss Post is the only known case of an actor buying domestic credits for voluntary compensation. Although possible, the use of CHAs for voluntary offsetting is not desirable for the FOEN, as it may cause issues of double claiming domestically (Gliesche 2016).

At the moment, there is uncertainty as to whether and how the offset scheme will continue after 2020. While the Federal Council envisages a continuation of the mechanism this will only be certain once the new CO₂ law is adopted. This is a major obstacle for project and programme developers, as long-term planning is impeded.

However, with the ambitious emission reduction target of the Swiss NDC the offsetting obligation can be expected to continue and to become even more ambitious. To bridge this phase of relative uncertainty, the Swiss government assures project developers that they will be able to generate and sell credits during the time of the crediting period. Whether these will be CHAs for the time after 2020 or, in the unlikely case of a policy change, other types of (international) credits is yet unclear (Gliesche 2016).

Table 15: Safeguards to avoid double counting and implications for environmental integrity in Switzerland

| Type of double counting | Safeguards to avoid double counting | Implications for environmental integrity/ credibility of the scheme |
|-------------------------|---|---|
| Double selling | To avoid double selling and double issuance, emission reductions are centrally registered and publicly traceable in the Swiss Emissions Trading Registry. | Double selling safeguards effectively preserve environmental integrity. |
| Double issuance | (see above) | Double issuance safeguards effectively preserve environmental integrity. |
| Double claiming | Does occur in the sense that both companies and the government can claim the emission reductions of a given project. In theory, credits may also be purchased by domestic actors without emission reduction obligations, as the Emissions Trading Registry is open to any buyer. The law details the purpose of these offset projects, thereby making it transparent that the government uses reductions towards its targets. As credits are issued in and must stay in Switzerland, there is no risk of double claiming between Switzerland and another country, as companies with emission reduction obligations outside Switzerland cannot purchase CHAs. | Environmental integrity is sound because there is only one party with compliance obligations claiming reductions, and communication about the double claiming from the sides of both government and company is transparent and clear. |
| Double monetisation | Double monetisation as defined in the previous chapter cannot occur in the Swiss case, as it is not a voluntary scheme, which is why no voluntary credits can be issued for which AAUs would need to be cancelled to prevent double monetization. | Not possible by design. |



4.7 United Kingdom

4.7.1 Overview of the initiative

The United Kingdom is one of the most sparsely forested countries in Europe, with only 13 percent forest cover (World Bank 2015), half of which is privately owned. Considering the crucial role of carbon sinks under increasingly ambitious emission reduction targets, there is still great potential to be unlocked in the UK's LULUCF sector (Broadmeadow and Matthews 2003). Under current legislation, however, few incentives were provided for forest and land owners to invest in the restoration of woodland and the management of land for carbon sequestration (Read et al. 2009). The Woodland Carbon Code, a voluntary carbon offset scheme and a standard for woodland creation, takes on this challenge and aims at increasing the volume of carbon sequestered through afforestation within the UK.

(a) Market information

Table 16: United Kingdom – Woodland Carbon Code

| United Kingdom – Woodland Carbon Code | | |
|---|---|---|
| Operational since: 2011 | Government involvement: Yes, developed and overseen by government |  |
| Administered by: Forestry Commission | Agency type: National Government Agency | |
| Scope (September 2016): 240 projects registered (16 ha woodland / 5.9 M t CO ₂ eq), of these: 127 projects validated (4.8 ha / 2.3 M t CO ₂ eq) 2 projects verified (21 ha / 0.011 M t CO ₂ eq) | Average certificate price: £ 7-15/t CO ₂ eq (€ 9-19/t CO ₂ eq) | Project type(s):  Forestry (Afforestation) |
| | Registry: UK Woodland Carbon Code Registry, provided by Markit | |
| Legal context: Voluntary | Tradability: Nationally only (through brokers) | Type of standard: Project-specific ex-post standard (WCU) |
| Project area(s): Nationwide | Buyers: UK-based corporations in various sectors (e.g. retail, transport, paper, travel, finance) | Type of units: 'Pending Issuance Units' (PIU) / 'Woodland Carbon Units' (WCU) |
| Short description Launched in 2011, the Woodland Carbon Code (WCC) is a voluntary standard that generates credits for national woodland creation. Since 2011, more than 200 projects with an overall volume of 15,84 hectares of woodland with a sequestration potential of 5,84 million t CO ₂ e over the next 100 years have been registered, 125 of which have already been validated. The first verified credits became available in 2016. After public registration, tree planting projects need to be independently validated and meet transparent criteria and standards similar to VCS and the Gold Standard. Parts of the credits are issued ex-ante as so-called "Pending Issuance Units" (PIUs), interim credits that stand for a promise to deliver future GHG removals but that cannot be claimed. Woodland Carbon Code units can only be counted against mitigation targets 'ex-post', after verification of the carbon sequestration and a transformation of PIUs into Woodland Carbon Units (WCUs). Since 2014, PIUs are available for sale and once converted into verified units, they become available for use within the UK to offset for organisation's emissions or to claim carbon neutrality of a product or an event. Recent estimates of the Forestry Commission suggest that 1.4M validated PIUs have been sold already (West 2016). | | |

(b) Governance

The Woodland Carbon Code is a government initiative. It has been developed and is managed by an Executive Board consisting of the UK Forestry Commission (the government department responsible for forestry matters in England and Scotland) and the Welsh government. This board is responsible for the application, promotion and strategic and technical development and conducts annual reviews of the code. The Executive Board's work is supported by an Advisory Board with stakeholders from both public and private sector engaged in forestry or carbon markets.

Main objectives for the development of the WCC were to ensure high standards in the forest carbon market and to establish a clear and transparent approach to bolster market confidence. The development of the code was also a reaction to the lack of trust in the environmental effectiveness of carbon offsetting projects in the UK and the criticism voice regarding carbon offsetting. With the WCC's government-led consistent national approach, buyers interested in voluntarily offsetting their corporate or private emissions can be assured that the promised benefits will actually be delivered, enhancing the utility for corporate communication of mitigation activities. The government, on behalf of the Forestry Commission, perceives itself as a facilitator that helps to incentivise action in the voluntary market (EAEM 2012).

(c) Project information

The Woodland Carbon Code is a forestry standard and exclusively covers projects that sequester carbon through the creation of woodland within the United Kingdom. By the end of 2015, more than half of the registered projects were located in England and another 40 percent in Scotland. The scheme accounts for “carbon sequestration and emissions for new woodland creation”, woodland creation through planting and natural regeneration and “emissions outside the woodland boundary as a result of the project going ahead” (leakage). Only land that has not been under tree cover for more than 25 years is eligible for a woodland creation project.

As tree cover in the UK is particularly low compared to other European countries, woodland creation is an effective measure to store atmospheric carbon together with a range of co-benefits to the local environment, wildlife and people. In particular, it entails multiple ecosystem services like better quality of water supply, mitigation of flood risk, reduction of pollution and shelter for wildlife (Woodland Trust 2014).

(d) Methodology / standard

The Woodland Carbon Code has developed its own quality standard for carbon offsets, based upon a rigorous scientific basis and is aligned with the main requirements of international voluntary carbon standards, such as the Gold Standard and VCS, with the exception that AAUs cannot be cancelled in ex-change for Woodland Carbon Units (WCUs), as this is not currently permitted in the UK (Forestry Commission 2015). The WCC’s methodology was developed by the Forestry Commission together with the Department for Environment, Food and Rural Affairs (DEFRA) and the conservation NGO Woodland Trust. It is revised on a regular basis, and the current handbook is already version 1.3 (of July 2014).

The WCC guides project developers through all relevant aspects of eligibility, project governance and documentation, carbon sequestration, environmental quality and social responsibility (Forestry Commission 2016a). All projects eligible under the WCC need to be publicly registered and are then subject to an initial validation by an independent certification body. To be validated under the WCC, projects need to comply with at least three out of the code’s four additionality criteria that comprise legal, financial, investment and barrier tests. In particular, projects need to demonstrate that the intended woodland creation is additional to a ‘business as usual’ scenario and not required under existing legislation (legal test), that it would not have been implemented without the additional revenue from the project and that social economic or environmental barriers that could have impeded the project are overcome (Woodland Carbon Code 2014). Moreover, projects need to demonstrate that they address the risk of non-permanence by setting aside a proportion of 15-40 percent of the projected net carbon sequestration as a buffer, depending on the estimated risk score (Forestry Commission).

Upon successful validation, the project or group of projects receives a ‘Validation Opinion Statement’. Upon validation, ‘Pending Issuance Units’ (PIUs) are issued in the amount of the expected sequestration benefit of the first time period (5 years), standing for a promise to deliver future carbon sequestration. After five years the project is verified for the first time, followed by verifications every 10 years. Only once the project’s carbon sequestration has been verified, the PIUs are converted into WCUs, which can be retired immediately or in the future to demonstrate a reduction of net emissions. This ex-post approach ensures that carbon reductions can only be counted against voluntary targets when the reduction can be demonstrated. Validation and verification must be undertaken by independent certification bodies accredited by the UK Accreditation Service, which currently includes three accredited companies.

PIUs have been available for purchase since 2014. They are available for corporate buyers or traders such as brokers, while individuals can only purchase verified WCUs to be retired immediately. PIUs cannot be used, retired or reported before they are verified and converted into WCUs (Forestry Commission 2016b). This enables project developers to receive funding in an early stage of the project while avoiding risks of non-permanence etc. The first project was verified in March 2016 in Scotland, with a carbon sequestration benefit of 2,000 t CO₂ eq (Forestry Commission 2016c).

The WCC handbook for project developers provides extensive guidance on methodology, including baseline calculation, avoidance of leakage, provision of ‘buffer’ and calculation of sequestration potential. In other instances, the WCC offers direct support on baseline calculation and recommends external documents, such as the IPCC 2003 Good Practice Guide for LULUCF. The assessment of co-benefits of woodland creation is not yet mandatory, but the WCC encourages project developers to include them in the project design document.

To calculate the net benefit of the sequestration project, a baseline scenario must be established first, taking

into account the various carbon pools of the project area, e.g. tree and non-tree biomass, litter and deadwood, soil and GHG emissions from woodland management (Forestry Commission). The WCC provides guidance and calculation tools for establishing baselines and projected carbon sequestration, such as the 'Carbon Lookup Tables', Soil Carbon and the Woodland Carbon Code' or the 'Carbon Assessment Protocol'. Changes to soil carbon resulting from the project activities should be taken into account both in terms of soil carbon losses resulting from project site preparation and soil carbon sequestration associated with woodland creation. Methodology for the calculation of soil carbon accumulation throughout the project lifecycle is already available for one soil type and being developed for further project types.

(e) National registry and/or project registries

The Woodland Carbon Code is a voluntary domestic standard that can neither be used in compliance schemes, such as the EU ETS, nor can its units be traded on international markets (Forestry Commission 2015).

Responding to concerns about double counting, since 2013, all projects under the Woodland Carbon Code have to be registered in the UK Woodland Carbon Registry. The registry is provided by the Markit Environmental Registry, a tool for managing and tracking carbon, water and biodiversity credits. The registry's main objective is to increase the transparency of project registration, sale of units and retirement of credits and thereby to enhance the environmental integrity of projects in the voluntary market. It includes two types of registries: (1) a project registry and (2) a carbon unit registry to document issuance and transfer of PIUs as well as for buyers to use, retire or report them once they have been transformed into WCUs.

The project registry includes a 'status' option that allows project developers to indicate at which stage of development their projects are and to update it throughout the process of project development, validation and verification. Any changes are double-checked by the Forestry Commission/Markit before their release. Newly registered units are allocated a unique serial number to make them traceable. Ownership of PIUs and WCUs can only be transferred from one Markit account holder to another to guarantee a transparent process, and the current owner of a unit is listed in the registry.

Units can only be used for claims to report against emissions when they are verified and the carbon sequestration has actually been delivered, as PIUs are not guaranteed. However, carbon owners can state expected future carbon benefits of PIUs allowing companies to plan compensation of future emissions ahead. PIUs can help demonstrate the scale of a company's investment in future sequestration of carbon emissions and support their statement of environmental commitment. Once WCUs are used by a company, they have to be retired from the registry to a publicly available 'retirement' account. This makes it possible for everyone to track the units, and can be reported in GHG, CSR (corporate social responsibility) or environmental reports or for any other promotional purpose (Woodland Carbon Code 2014).

(f) Double counting provisions

The Woodland Carbon Code has strict regulations to avoid double counting as far as possible. With respect to double selling, the use of the Markit Registry effectively rules out that a unit is sold twice. The registry is publicly available and the credits with their unique serial numbers can only be processed in one account at a time, clearly showing who owns the units. Double certification or double issuance through a second standard is currently not possible either, as there is no other standard for issuing credits for woodland projects within the UK and as only one registry is used for all credits. Standards like VCS and the Gold Standard are currently not crediting woodland projects in the UK due to concerns of double monetisation with the national inventory. In addition, projects are obliged to declare that they have not registered elsewhere and administrative checks are carried out.

On the national level, woodland created through the WCC is counted both towards the UK's domestic reduction target and its Kyoto target, as the UK Government counts forestry towards its pledge. Therefore, the units are double claimed by the government and by the buyer of the WCU at the 'corporate level'. But communication is clear on this, so that companies know that their voluntary contribution is also helping the government achieve its national targets. This means while there is double claiming, it is environmentally integral because it involves only one party with compliance obligations and the communications approach is very transparent.

Units must not be traded internationally, nor can they be used in the EU ETS. Moreover, the buyer of the units must be UK based and must not use it for compliance purposes. At the same time, the government does not cancel AAUs for the amount of voluntary credits generated. However, double monetisation of credits both as a voluntary unit and as an AAU is in principle precluded by the fact that the UK's national reduction target is stricter than the Kyoto GHG reduction target: Within the current budget period running until 2017, the UK national target of reducing emissions to 2,800 M t CO₂ eq exceeds the Kyoto target (almost 3,000 M t CO₂ eq) by nearly 200 M t CO₂ eq of additional GHG reduction, corresponding to a 29 % reduction below 1990 levels (for 2020, the UK aims to reduce by 35 %, Committee on Climate Change). This means that surplus units that go beyond the Kyoto target are counted towards the UK's national emission reduction target and are "additional" to compliance. Current legislation states that should there be any AAUs or RMUs left in the domestic carbon budgets, as reductions exceed the target, these will be cancelled and not sold to another country. The WCUs are thus only accounted for in one national GHG inventory within the international climate regime, leaving its environmental integrity intact.

However, it is unclear what this will look like after the year 2027 when the four budgetary periods of the UK Climate Change Act end, or even after 2020, as the new Effort Sharing Regulation is still under consultation. If the EU implements a reduction target of 80-95 percent by 2050, the UK's target (80 percent by 2050) might no longer be more rigid. The same holds with respect to the Paris Agreement's global climate neutrality target. Above all, uncertainty surrounding Brexit and what this means in terms of the UK's share in the EU's intended nationally determined contributions (INDCs) and its participation in the EU Emission Trading System looms large. In the medium term, double monetisation could thus be an issue.

Table 17: Safeguards to avoid double counting and implications for environmental integrity in the Woodland Carbon Code

| Type of double counting | Safeguards to avoid double counting | Implications for environmental integrity/credibility of the scheme |
|----------------------------|---|---|
| Double selling | Exclusive use of the Markit registry, which is available to the public and clearly indicates credit ownership and makes it impossible to sell or transfer one credit to multiple buyers | Double selling virtually impossible |
| Double issuance | WCC is currently the only standard to verify / validate woodland projects in the UK Administrative procedures to "check that each new project registered with the standard is unique and the project area is not already included within the scheme under a different name or project developer, using the grid reference of each project" (West 2015) | Double issuance currently very unlikely. If other standard started crediting woodland carbon projects in the UK, more safeguards would be needed. |
| Double claiming | Units are only accounted for in one national inventory within the international emissions reporting process. Clear communication on the fact that WCC units contribute to the national reduction target. | Environmental integrity is sound because there is only one party with compliance obligations claiming reductions, and communication about the double claiming from the sides of both government and company is transparent and clear. |
| Double monetisation | UK emission reduction target is more stringent than international commitment and it has committed to cancelling any excess AAUs. PIUs and WCUs are only available to domestic buyers. | As long as the domestic target is more ambitious than the UK's commitments under Kyoto and the EU climate policy, double monetisation is not an issue. If the UK decided to sell 'spare' AAUs or RMUs, however, there would be a risk of double monetisation. In addition, by limiting the sale of credits to the domestic market, double monetisation by two Annex B countries is not possible. |

4.7.2 Integration of the initiative in the pre-2020 framework

The United Kingdom is an Annex I Party to the Kyoto Protocol and has binding targets for the first and the second commitment period. Between 2008 and 2012, its target according to the Burden Sharing Agreement of the European Union was to reduce emissions by 12.5 percent compared to 1990 levels, which was increased to 20 percent for the period of 2012-2020. At the same time, with the UK Climate Change Act from 2008, the United Kingdom has set itself ambitious 5-year domestic carbon budgets to achieve reductions that go beyond the Kyoto commitments. The UK has met its 23 percent reduction for 2008-2012, and is on track for the 29 percent reduction for the period of 2013-2017. The final target is a reduction of 50 percent by 2025. LULUCF-related carbon sinks are not part of the reduction commitment.¹⁶

As the domestic targets are more ambitious than the Kyoto commitments and require significantly upscaling national efforts to reduce GHG emissions, the UK is accounting for all woodland created through the WCC in its national carbon inventory and counting it towards its Kyoto pledge and its national carbon budgets.

The Woodland Carbon Code is limited to the forestry sector. The Kyoto Protocol stipulates that net changes in carbon budgets and GHG emissions removals by sinks from specific LULUCF activities should be counted against Parties' commitments, while accounting of other activities is voluntary (for grassland, cropland and revegetation). The WCC activities fall under the category of "direct, human-induced, afforestation, reforestation and deforestation activities" and are thus listed in the UK's national inventory in accordance with the Kyoto Protocol's LULUCF regulations. As a result, removal units are credited to the national account for WCC projects in the UK.

In the case of the WCC, it has been demonstrated that all projects are additional so that voluntary action is not replacing compliance but adding to the UK's mandatory activities. Although the reductions contribute to the national target, the national commitment and accounting as such do not incentivise woodland creation. Therefore, voluntary action and private finance is needed to fill this gap, making a case for the additionality of the WCC despite its contribution to the national target (Peters-Stanley et al. 2012). At the same time, it could be argued that in the absence of WCC projects or if they were not counted towards the national target, the national government would need to take more action to reduce emissions, as it would not benefit from voluntary commitments.

Moreover, regulatory overlap with Kyoto accounting (sectoral coverage) and the fact that AAUs retirement is currently not permitted in the UK theoretically pose a challenge. While the restriction to domestic trading is less problematic for UK-based companies, corporate buyers with international activities or subsidiaries in the UK might restrain from buying WCUs, as they are not useable in the international context (West 2016).

With respect to RMUs generated through WCC projects, this could cause double monetisation issues in the future depending on whether or not UK targets continue to exceed international targets. In the first Kyoto period all RMUs from forestry and agriculture were cancelled, as the target could easily be met without making use of them.

In November 2015, the UK's national International Union for Conservation of Nature committee launched the Peatland Carbon Code, a voluntary standard for UK-based corporations to financially support peatland restoration within the UK. While accounting for wetland drainage and rewetting is not mandatory under both the Kyoto Protocol and EU climate policy, the UK has decided to include these activities in its climate change targets. The Defra-funded initiative is therefore faced with similar double monetisation issues as the WCC.

Reporting of GHG emissions is compulsory for about 1,000 companies in the UK since 2013 that are listed on a stock exchange. While measuring and reporting obligations are not linked to mandatory emission reductions yet, more companies may wish to reduce or offset parts of their emissions. This could leverage the demand for WCC carbon credits.

One of the WCC's objectives upon its creation was to set a framework to support the mandatory market in the future. A key prerequisite for any use of WCUs towards compliance targets would, however, be the cancellation of allowances for each WCU. There are several possible ways to integrate the WCC into the compliance framework. One option could be to allow forestry activities to generate ERUs through JI, which could then be used

¹⁶ Additional information: For the Kyoto Protocol's first commitment period, the UK chose to report forest management as an activity under article 3.4, and added cropland management, grazing land management and wetland drainage and rewetting, but not revegetation, for the second period (Buys et al. 2014).

within the EU ETS. Although LULUCF activities covered by Kyoto are eligible under JI, current EU ETS rules still exclude LULUCF, but this could change for the period after 2020.

Another possibility for the transition towards a compliance mechanism is the creation of a domestic compliance scheme under JI that allows participants to use WCUs as offsets to comply with their targets. The UK government would then issue ERUs for WCC projects, requiring the cancellation of allowances or RMUs to avoid double counting. Currently, the UK only accounts for RMUs over the entire commitment period instead of annually, making RMu cancellation for ERU issuance more difficult and therefore a less likely option (Ascui and Neeff 2013).

Cancellation of AAUs and RMUs would furthermore enable project developers to generate offsets that can be sold on the international voluntary carbon market without facing double counting issues. Another option could be a direct allocation of AAUs to forest owners that would later be recognised as RMUs in the national account.

5 Design options and recommendations post-2020

5.1 Post-2020: What will be different?

5.1.1 International framework: Paris Agreement

In Durban, in 2011, Parties committed to the establishment of a successor to the Kyoto Protocol. At COP 21 in December 2015, the Paris Agreement was adopted and is to come into effect and be implemented by 2020. The Paris Agreement is fundamentally different from the Kyoto Protocol in a number of ways. Notably, the agreement is applicable to all Parties, or, in other words, all parties are expected to contribute based on the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDRRC).

The fact that all parties are expected to contribute, stands in contrast to the static annex framework of the Kyoto Protocol, under which only industrialized countries and economies in transition in Annex B (most UNFCCC Annex I parties) had formal top-down obligations. The Paris Agreement thus greatly expands obligation coverage and successfully includes those Parties that did not ratify or withdrew from the Kyoto Protocol, including the world's two largest emitters the USA and China. Through its intended nationally determined contributions process the UNFCCC has established a framework for bottom-up pledges that need to be transformed into legally binding targets under a new mechanism of the Paris Agreement nationally determined contributions.

Although “markets” are nowhere explicitly mentioned, the Paris Agreement allows the “use of internationally transferred mitigation outcomes towards nationally determined contributions” under Article 6.2, equalling the establishment of a new market mechanism. As all Parties contribute under the Paris Agreement, the distinction between Annex I and non-Annex I countries will become obsolete. Instead, all Parties may buy and sell emission reduction certificates, or “internationally transferred mitigation outcomes” (ITMOs). ITMOs can essentially be derived from any kind of bilateral, regional or multilateral cooperation, for example in the field of carbon schemes, technology transfer, ETS or even climate finance (Prell 2015). The process is based on voluntary cooperation between Parties and relies on a bottom-up process rather than a centralized capped mechanism.

In addition to the mechanism of transferring ITMOs, the Paris Agreement also makes arrangements for the establishment of a new mechanism for mitigation and sustainable development that could succeed JI and CDM. This mechanism targets private and public entities alike, and will be installed under the UNFCCC with supervision from a body designated by the Parties. In contrast to JI and CDM, article 6.4 is intended to obtain net emission reductions instead of delivering pure offsetting of emissions.

The specific rules are yet to be fleshed out, but hopes are that the new mechanisms can move beyond traditional Kyoto mechanisms, as it aims to “deliver an overall mitigation in global emissions” and thus generate net atmospheric benefit instead of pure offsetting. Whether the new scheme will be designed as a ‘cap-and-trade’ system or rather use ex-post crediting against baseline calculations like CDM and JI remains to be decided. Moreover, the new framework emphasizes the promotion of sustainable development alongside GHG mitigation and Parties succeeded in including provisions in support of a robust accounting framework (Szabo 2015).

Article 4.13 and 6.5 explicitly mention double counting and stipulate that reductions “shall not be used to demonstrate achievement of the host Party’s nationally determined contribution if used by another Party”.

Defining the relationship between new market mechanisms and NDCs will be one of the most important determinants for future prospects of DOPs. New additionality rules will need to be defined, as additionality will have to be shown at two levels: first and foremost at individual project level and secondly at a policy level to assess whether double counting occurs. A new accounting framework and regulations need to take this into account (BMUB 2015b).

The PA furthermore states, that developed countries are expected to commit to economy-wide absolute reduction targets, while developing countries are encouraged to increase ambition towards an economy-wide target over time. What “economy-wide” specifically means is yet to be defined. This may have implications for domestic offset schemes with regard to potential double counting and to proving additionality: on one hand, the scope of action for voluntary projects is reduced by the risk of (future) overlap with compliance sectors. On the other hand, the result may be a market that is more open for domestic projects. Potential changes in scope of the economy-wide targets may also raise additionality issues for voluntary projects with a term beyond 2020 in sectors that are not covered by the Kyoto scheme at the moment, but will be part of obligations under the PA. In any case, a clear framework is needed for how to account for voluntary actions in the face of compliance activities – otherwise, double counting will become the new normal or there will be even less action in the area of DOPs.

Double counting under the Paris Agreement can occur on different levels, including bilateral cooperation, in the context of market mechanisms, with a country’s NDC or also outside the UNFCCC framework. Enhanced reporting and other procedures are expected to improve oversight and reduce the risk of double selling and double accounting. Moreover, with robust rules to prevent double counting the risk of double monetisation of carbon credits both as VERs and as ITMOs can hopefully be reduced. This could include a clear guideline on how to ensure that emission reductions show up in one inventory only.

For example, if a developing country government that sells credits internationally does not account for the export of units to a developed buyer country, the units are double claimed. Within the Kyoto regime this does not compromise the environmental integrity of the traded units, as developing countries do not have any emission reduction commitments. However, as all countries will have binding targets under the Paris Agreement, this could become a problem after 2020.

Demand and supply for domestic offsets

The Paris Agreement expects cooperation mechanisms to contribute to increased ambition of Parties in the implementation of NDCs: About half of the Parties (80, representing 25 % of global emissions) indicated they expect market-based mechanisms to contribute to the targets submitted in their INDCs. This might offer great potential for domestic offset schemes, as more ambitious targets are likely to increase demand for carbon credits. In particular, only few countries like Canada, Japan, New Zealand or Switzerland included the option of meeting their targets with the help of carbon credits in their INDCs. Major Parties including the European Union and the U.S. explicitly declared that they intend to meet their initial pledges without acquiring international offsets. This could open up new possibilities for domestic projects in meeting the additional mitigation need resulting from the PA. However, the Paris Agreement’s ratchet mechanism foresees a five-year review of NDC ambition that will become mandatory from 2023 onwards. With increasing ambition, the use of international offsets to comply with more ambitious targets at a later stage is an option.

Besides the commitment to keep the global temperature increase below 2°C and to strive for limiting global warming to 1.5°C, Parties agreed to peak emissions as soon as possible and to aim for carbon neutrality in the second half of this century. In order to achieve net zero anthropogenic GHG emissions large-scale mitigation is indispensable. The potential for mitigation in our global economy may, however, not be unlimited, and carbon sinks and other offset mechanisms carry great potential for neutralizing those emissions that are unavoidable.

With enhanced rules for double counting under the Paris Agreement, developing countries will no longer be able to deduct emission reductions that they sell as carbon credits to another country from their national carbon inventory (Zwick 2016). This may have substantial implications for the supply of international carbon credits – and potentially increase the demand for domestic offsets in countries willing to use credits for compliance.

5.1.2 European framework: enhanced flexibilities under ESR and Article 24a

With the Paris Agreement, domestic offset mechanisms could gain more importance on the European carbon market, as their potential of reducing a Member State's quota under a future Effort Sharing Regulation (ESR) is substantial. In particular, they have the potential to achieve emission reductions in sectors and by entities not addressed by the EU ETS, e.g. agriculture, building, transport, LULUCF, or household emissions.

Flexibilities under the ESR are to be “significantly enhanced” from 2020 onwards in support of the new targets that will not allow any Member State to increase its emissions in the non-ETS sectors. Of the existing flexibility instruments, trading between Member States is to be maintained in the post-2020 framework. Whether or not the 5 percent limit for the transaction volume will be increased to enhance flexibility is yet to be decided. The instruments of banking and borrowing will also continue after 2020, but borrowing between the years will remain limited to the current 5 percent value. As ESR targets will be raised, DOPs could gain more importance on the European carbon market, as their potential of reducing a Member State's quota is substantial. Moreover, the EU's decision not to make use of international credits post 2020 also means that these credits can no longer be used as flexibilities under the EU ETS and the ESR. This will rule out CERs from CDM and ERUs from non-EU Member States, while credits equivalent to what are currently ERUs from within the European Union might still be eligible. Together with the rising targets for non-ETS sectors for the period of 2020 to 2030, this can unlock great potential for domestic projects.

The mechanism under Article 24a yet remains to be further developed and formally implemented by the European Commission. While the concept is different from a domestic offset scheme, the creation of an EU-wide project-based mechanism could be an effective way to stimulate voluntary domestic projects as well. Several arguments support the idea of a project-based mechanism to generate credits for use towards Member States' commitments under the ESR, including a better involvement of private actors, a reduction of abatement costs and thus higher cost efficiency, or the stimulation of innovative mitigation action (Meyer-Ohlendorf 2015).

Although it would involve trading between states and thus not qualify as a domestic market in a strict sense, this mechanism could help leverage projects that otherwise would not have been developed for lack of finance or scale with substantial spillover effects in the host country. Credits generated for intra-EU trade could then also be used for sale on the domestic market. Moreover a projectbased mechanism under Article 24a could enhance local knowledge on offsetting possibilities and foster the dissemination of best practices (Carbon Market Watch 2015). However, the implementation of a “European Project Mechanism” under Article 24a is currently rather unlikely.

5.1.3 The German market post-2020

Germany has set itself ambitious targets of reducing its GHG emissions by 40 percent by 2020 and by 80 to 95 percent by 2050. The decision of the EU not to make use of international credits to achieve their pledges under the new Paris Agreement (a 40 percent reduction by 2030) is likely to have an impact on the demand for domestic carbon credits in Germany, too. The increasing demand for domestic action may already be felt in the years remaining until 2020: While in the first Kyoto commitment period, Germany had an AAU surplus of 0.5 billion t CO₂ eq, it has decided not to carry over any of these units into the second commitment period and not to trade them (DEHSt 2015).

Moreover, as the German climate target for 2020 is more ambitious than that of the EU, Germany cannot make use of EU market mechanisms in achieving its additional percentage points of GHG reduction.

New flexibilities in the new Effort Sharing Regulation could open up new possibilities, although limited in scope, for domestic projects in the LULUCF sector: according to the proposal, up to 0.5 percent of 2005 emissions in the form of credits from land use may be used by Germany to achieve its national target under the ESR.

5.2 Key challenges and opportunities

On the basis of the preceding chapters, the graph below summarises and illustrates the main challenges and opportunities domestic offset schemes face under the current international mitigation framework and highlights the potential changes from 2020 onwards under the Paris Agreement. It also links these to the report's recommendations which are explained further below.

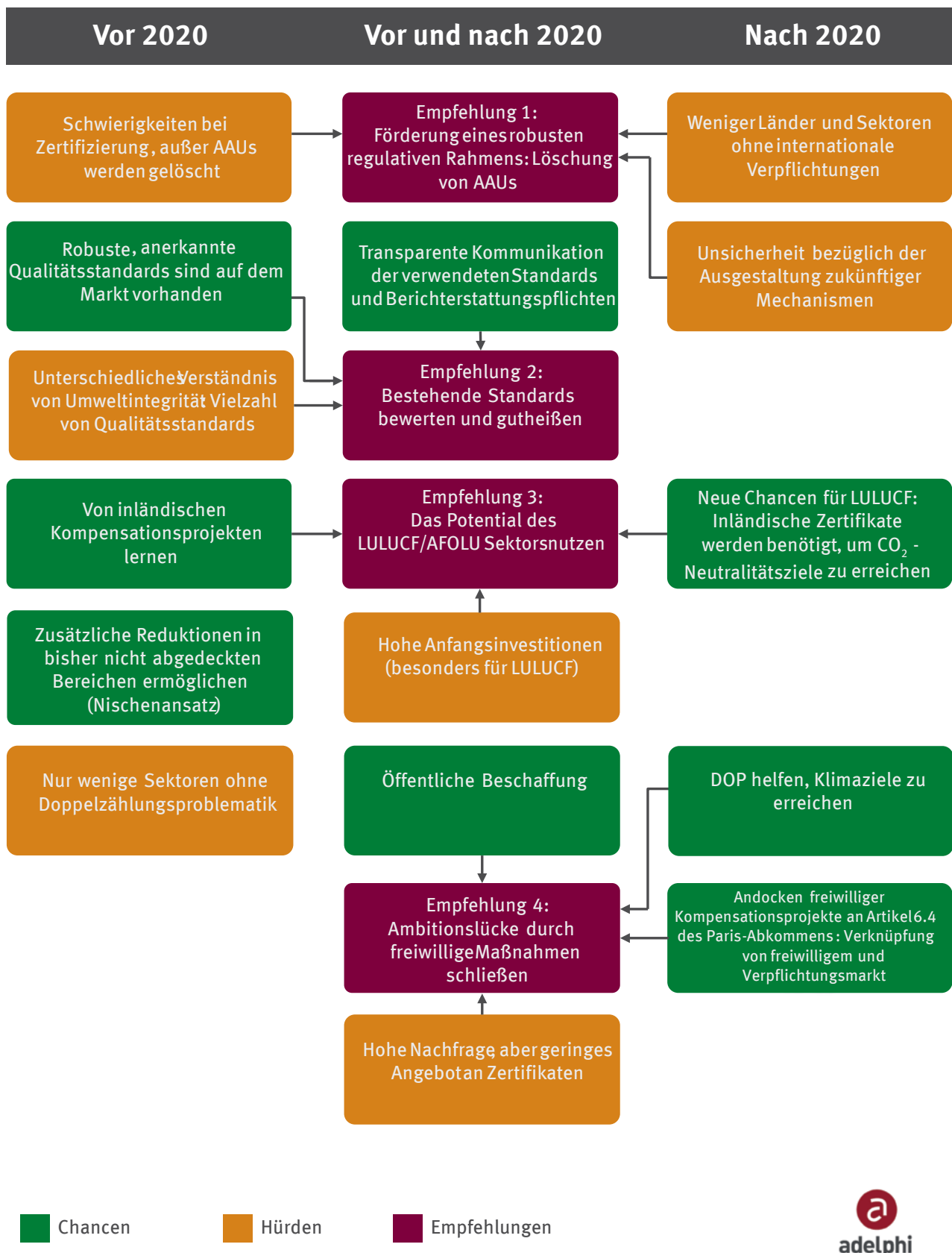


Figure 17: Opportunities and challenges pre and post 2020

5.3 Recommendations

Voluntary carbon markets have always played an important role as playing fields, pioneering and improving mechanisms. This can be an important function of voluntary markets also with regard to the post-2020 framework. At the same time, the degree of regulation of the voluntary carbon market is still limited. A number of quality standards and voluntary schemes with different stringency coexist with varying perceptions of the issues related to environmental integrity, robust accounting frameworks and double counting. This regulative uncertainty is also reflected in the volume of voluntary credits internationally: In 2015, only 1.4 percent of the volume in the global carbon markets was attributable to the voluntary market (Ecosystem Marketplace 2016; Thomson Reuters 2016).

As we work towards more ambitious emission reduction targets, voluntary carbon markets can and should play a more important role in safeguarding the international pathway to limit global warming to below 2°C. Considering the substantial ambition gap under the Paris Agreement, with analysis indicating that pledges included in the NDCs are merely sufficient for a 3°C path (UNEP 2015), more efforts are needed from all parts of society and the private sector. However, with increasing coverage of mitigation activities included in international and regional compliance schemes, the scope for voluntary domestic projects needs to blend with the compliance market over time. Under current legislations and different regulatory domestic frameworks, virtually all voluntary projects will need to find solutions to issues of double claiming and double monetisation. In addition, in a world where almost all countries assume binding targets or commit to contribute to the Paris Agreement, as opposed to the framework of the Kyoto Protocol, the voluntary domestic carbon market needs to redefine its role. If we want to promote and support voluntary initiatives for climate protection, national governments need to act soon to establish a credible and robust regulative framework that enables project developers to generate high-quality voluntary offsets that are environmentally sound.

The following recommendations can help to address these challenges:

5.3.1 No more niches: Regulative framework needs safeguards to avoid double counting

The launch of the EU ETS in 2005 and the beginning of the first Kyoto commitment period in 2008 marked an important change for voluntary carbon offsets, which were largely unregulated and offered creative leeway for climate policies by then. The introduction of binding emission reduction targets, although a starting point for various carbon markets, also introduced the issue of double counting for the voluntary market. Since then, the scope of activities that are not at risk of double claiming or double monetisation has been further decreased and will dwindle by 2020.

At present, voluntary carbon schemes can still develop niche approaches within sectors that are not entirely captured in the national inventory for compliance purposes. However, in Annex B countries such niches are restricted to those LULUCF activities not yet voluntarily selected under the Kyoto Protocol. For EU Member States, this gap will close at latest with the new Effort Sharing Regulation starting in 2021. Any state aiming at credible and environmentally sound emission reduction should therefore take measures to create space for voluntary projects to be implemented without emission reductions or removals risking to be counted twice.

Cancellation of AAUs: To do so, governments may consider cancelling AAUs, or the equivalent units in a post-2020 world, in lieu of voluntary carbon credits to reliably exclude double claiming and double monetisation and thus incentivizing voluntary engagement. At present, the main perceived barrier to cancelling AAUs is concern of indirectly endorsing emission reductions that might not be environmentally sound. At the same time, reliable and internationally acknowledged quality carbon standards such as the Gold Standard and VCS do not certify emission reductions or removals in Kyoto Protocol Annex B countries unless they permanently cancel AAUs. To break this cycle, cancellation of AAUs or respective scheme units for voluntary projects credited under pre-defined robust quality standards that fulfil certain criteria may be worth considering. Instead of cancellation, a less bureaucratic way could be for a government to commit to not selling excess AAUs. Besides addressing double counting, these pathways would also guarantee that reductions or removals from voluntary projects are truly additional to national compliance activities, raising the ambition of the overall target and confirming the integrity of the system.

At least five EU Member States, Denmark, Germany, the Netherlands, Sweden and the United Kingdom, have decided to cancel their surplus AAUs and ERUs that resulted from overachieving the targets of the first Kyoto commitment period by 2012 (Government of Sweden 2015). A similar decision for the second commitment period (if it were ratified) would be an opportunity to enable project developers to issue VERs in exchange in order to incentivise private mitigation action without risking to claim or monetise reductions or removals twice.

Deducting voluntary reductions/removals from national inventories: Another, yet less straightforward, solution could be discounting the GHG reductions and removals from voluntary projects from the national inventory and not counting them towards the compliance target. While the result would be the same as with AAU cancellation, the implementation could be more challenging. Currently, national inventories do not, but could potentially distinguish between reductions or removals from voluntary and from compliance measures. As a first step, a central registry for voluntary projects would therefore be required. If domestic projects were able to guarantee that emission reductions or removals are not accounted within the national inventory, they could even be eligible for certification under standards such as the Gold Standard – enabling the government to simply use the data from the corresponding Gold Standard registry for discounting voluntary emission reductions from the national inventory. A drawback is that as methodologies and accounting rules differ, credits are possibly not always fully comparable.

5.3.2 Assess and endorse existing voluntary carbon standards

While governments of European countries are still reluctant to recommend the use of existing voluntary carbon standards, examples of other countries show that there is an increasing recognition of voluntary standards also in compliance settings. For example, the VCS has recently been recognised by national governments as an offset mechanism for instruments such as the Californian cap-and-trade programme or the South African Carbon Tax Regulation (VCS 2016). This shows that voluntary standards are increasingly perceived as alternatives to the traditional compliance market standards in terms of rigour and delivering environmentally sound emission reductions. While official government endorsement (or by another central institution) of voluntary offset mechanisms requires a careful assessment, it could offer the opportunity to build on credible standards and use existing infrastructure instead of creating parallel structures that increase the risk of double counting. An endorsement could take the form of a positive list of recognized standards or provide certain benchmarks.

Even though it would require more detailed guidelines, this could also be a useful approach for methodologies: For example, additionality rules could be based on such benchmarks or positive lists – facilitating project development and thus allowing a scale-up of domestic offset projects. Additionality testing is often a very lengthy and costintensive procedure that significantly increases transaction costs for small project developers. At the same time, less complicated procedures may be at the expense of precision, so there is a tradeoff between costs and rigour of additionality tests. To give project developers more security of investment, some initiatives like the Australian ERF and the Italian Forest Carbon Code have shifted from project- to activity-based additionality tests and have established positive lists that designate technologies and activities that are considered additional per se. Standardisation of additionality testing through positive lists or performance benchmarks significantly eases the requirements for project developers. At the same time, there may be a higher risk of non-additional credits. Conservative benchmarks are therefore needed as well as more stringent testing for large-scale projects.

5.3.3 Leveraging the potential of the LULUCF / AFOLU sector

As the international community is aiming for a carbon-neutral world by the end of the century, carbon sinks will become more and more important. Since the potential for emission reductions in other sectors is not unlimited, in particular assuming that economic growth will continue, the carbon neutrality target will be mainly met with carbon sequestration from the LULUCF or AFOLU sector. To fully tap the potential of carbon sinks domestically, private initiatives are needed: In Germany, for example, almost 50 percent of all forests are privately owned, mostly fragmented areas that belong to small businesses. ‘Tree planting’ or other LULUCF or AFOLU projects are still very popular amongst businesses that voluntarily offset parts of their GHG emissions for CSR or publicity reasons, as the benefit that they create is more visible and easier to communicate than emissions avoided through technological innovation. Moreover, most domestic offset initiatives are active in this sector, thereby providing significant experience in developing and implementing emission reduction and removal projects that the compliance market can learn from.

However, there are drawbacks and the sector is not very attractive for project developers for several reasons. First, it remains very challenging to reliably calculate the sequestration potential of carbon sinks and to establish adequate baselines. In addition, LULUCF credits do not create carbon benefits right away, therefore, they should only be sold ex-post otherwise they carry a high risk of non-permanence. This requires project developers to make high up-front investments with uncertainty regarding the actual return. To encourage private action in the AFOLU sector, governments should provide initial financial support to land and forest owners to develop projects that sequester carbon from the atmosphere. The new land use flexibility that will become available under the ESR from 2021 onwards could be a good starting point to develop guidelines and standards for crediting of domestic AFOLU projects.

5.3.4 Closing the ambition gap with voluntary action

What seems to be a contradiction – using voluntary domestic offsets for compliance – may, in fact, be a feasible solution to get on track with an ambitious climate target. In order to close the ambition gap, more incentives are needed to encourage project developers to initiate activities that reduce or remove GHGs. Since much demand for sound emission reductions is likely to come from governments themselves, voluntary domestic schemes can offer alternatives to purchasing international credits. Apart from responding to the high demand for domestic credits on the voluntary market, using credits from DOPs for national compliance can be considered a fair contribution to the global climate target. The initiatives examined in Spain and Switzerland can provide useful leads for how to design implementation. Another starting point could be to adjust public purchase rules accordingly.

A scheme for voluntary domestic projects approved by a central national authority could further stimulate the use of DOP. Building on good practice in other countries, such a scheme could guarantee project developers the purchase of a fixed volume of credits, similar to the Australian model. At the same time, centrally-endorsed credits could be made available to interested actors via the voluntary carbon market. This would address multiple issues at the same time:

- ▶ **Enhancing investment security:** Guaranteed purchase of a fixed amount of units by the government, given the compliance of activities with predefined quality standards, enables project developers to plan ahead.
- ▶ **Encouraging innovative solutions:** As opportunities for further emission reductions in capped sectors will decline, the innovative, explorative potential of the private sector is urgently needed to stay on track with ambitious emission reduction targets.
- ▶ **Avoiding double claiming and double monetisation:** Bundling voluntary action under a domestic mechanism makes it easier to keep track of voluntary DOPs in order to take measures that avoid double claiming and double monetisation (e.g. cancellation of AAUs).
- ▶ **Safeguarding the integrity of reductions:** A domestic scheme gives governments full control of the quality requirements and rigor applied to domestic projects, making it easier to endorse the emission reductions or removals.
- ▶ **Addressing the supply problem:** Interest in domestic carbon offsets is high, but there is currently not enough supply. A government-approved domestic offset scheme that guarantees the avoidance of double claiming could level up the volume of domestically-generated carbon credits.
- ▶ **Creating local social, economic and environmental benefits:** Carbon offset projects can deliver multiple benefits above and beyond the carbon reduction, including health benefits, environmental conservation, investment in local economies, transfer of technology, or local infrastructure.

6 References

Ascui, Francisco and Neeff, Till (2013): Future Options for Forest Carbon Markets in Scotland and the UK Final Report. Forestry Commission.

Australian Government (2011): Carbon Credits (Carbon Farming Initiative) Act 2011. No. 101, 2011.

Australian Parliament (2011): Carbon Credits (Carbon Farming Initiative) Bill 2011.

Bonn, Aletta; Reed, Mark S.; Evans, Chris D.; Joosten, Hans; Bain, Clifton; Farmer, Jenny; Emmer, Igino; Couwenberg, John; Moxey, Andrew; Artz, Rebekka; Tanneberger, Franziska; von Unger, Moritz; Smyth, Mary-Ann; Birnie, Dick (2014): Investing in nature: Developing ecosystem service markets for peatland restoration. Ecosystem Services 9 (2014) 54-65.

Broadmeadow, Mark; Matthews, Robert (2003): Forests, Carbon and Climate Change: the UK Contribution. Forestry Commission. Edinburgh.

Brotto, Lucio, ETIFOR (2016): Self-conducted interview.

Bundesrat, Der Schweizerische (2015): Verordnung über die Reduktion der CO₂-Emissionen (CO₂-Verordnung) vom 30. November 2012 (Stand am 1. Mai 2015). 641.711.

Bundesamt für Umwelt BAFU (2015a): Kompensation von CO₂-Emissionen: fossil-thermische Kraftwerke. <http://www.bafu.admin.ch/klima/13877/14510/14759/index.html?lang=de>.

Bundesamt für Umwelt BAFU (2015b): www.bafu.admin.ch/publikationen/publikation/01724/index.html?lang=de&download=NHZLpZig7t.lnp6l0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpIChdXx8fGym162d-pYbUzd.Gpd6emK2Oz9aGodetmqaN19XI2ldvoaCVZ.s-.pdf.

Bundesamt für Umwelt BAFU (2016a): Wirkung von Kompensationsprojekten und Programmen. <http://www.bafu.admin.ch/klima/13879/13880/15742/index.html?lang=de>.

Bundesamt für Umwelt BAFU (2016b): http://www.bafu.admin.ch/klima/13877/14510/14760/14763/index.html?lang=de&download=NHZLpZeg7t.lnp6l0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpIChdH16e2ym162e-pYbg2c_ljKbNoKSn6A--.

Bundesamt für Umwelt BAFU (2016c): http://www.bafu.admin.ch/klima/13879/13880/15742/index.html?lang=de&download=NHZLpZeg7t.lnp6l0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpIChdH16e2ym162e-pYbg2c_ljKbNoKSn6A--.

Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2010): Kyoto-Mechanismen. <http://www.bmub.bund.de/themen/klima-energie/klimaschutz/internationale-klimapolitik/kyoto-mechanismen>.

Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2015a): Kyoto Protocol. <http://www.bmub.bund.de/en/topics/climate-energy/climate/international-climate-policy/kyoto-protocol/>.

Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2015b): Market mechanisms in the Paris Agreement - An initial stocktaking. <http://www.carbon-mechanisms.de/en/2015/paris-lays-foundation-for-market-mechanisms/>.

Canaveira, Paulo (2013). Options and Elements for an Accounting Framework for the Land Sector in the Post-2020 Climate Regime. Terraprima Report to the Swiss Federal Office for the Environment, February 2014.

Carbon Farmers of Australia (2012): Top 15 Questions about the Carbon Farming Initiative. <http://www.carbonfarmersofaustralia.com.au/carbon-farmers-of-australia-blog/top-15-questions-about-the-carbon-farming-initiative>.

Carbon Farming Initiative (2012): The Carbon Farming Initiative Handbook. http://c.ymcdn.com/sites/www.agrifoodskills.net.au/resource/resmgr/resource_library/cfi_handbook_29march2012.pdf.

Carbon Market Watch (2013): Joint Implementation: CDM's little brother grew up to be big and nasty (Newsletter #2). 04 Mar 2013.

<http://carbonmarketwatch.org/joint-implementation-cdms-little-brother-grew-up-to-be-big-and-nasty/>.

Carbon Market Watch (2015): Flexibilities in the EU's 2030 Effort Sharing Decision – Reducing the Costs of Tackling 60 % of the EU's Climate Problem. http://carbonmarketwatch.org/wp-content/uploads/2015/06/Flexibilities-in-the-EU%E2%80%99s-2030-Effort-Sharing-Decision_Poicy-Brief_final-June-2015.pdf.

CDC Climat Research; EDF Environmental Defense Fund; IETA Climate Challenges Market Solutions (2015): European Union: An Emissions Trading Case Study. http://www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/euets_case_study_may2015.pdf.

Clean Development Mechanism (2012): Methodological tool – Tool for the demonstration and assessment of additionality, Tool01, Version 07.0.0.

<https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v7.0.0.pdf>.

Clean Energy Regulator (2015a): Carbon Farming Initiative/Emissions Reduction Fund. <http://www.cleanenergyregulator.gov.au/About/Pages/Accountability%20and%20reporting/Annual%20Reports/Annual%20report%202014-15/Carbon-Farming-InitiativeEmissions-Reduction-Fund.aspx>.

Clean Energy Regulator (2015b): About the Mechanism. <http://www.cleanenergyregulator.gov.au/Infohub/CPM/About-the-mechanism>.

Clean Energy Regulator (2015c). Register of Greenhouse and Energy Auditors. <http://www.cleanenergyregulator.gov.au/NGER/For-auditors/Register-of-auditors>.

Clean Energy Regulator (2016a): Interactive Map. <http://www.cleanenergyregulator.gov.au/maps/Pages/erf-projects/index.html>.

Clean Energy Regulator (2016b): Emissions Reduction Fund Register. Excel Table. <http://www.cleanenergyregulator.gov.au/DocumentAssets/Documents/Emissions%20Reduction%20Fund%20Register.xlsx>.

Clean Energy Regulator (2016c): The safeguard mechanism. <http://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund/the-safeguard-mechanism>.

Climate Action Network (2016): Post-Paris EU climate policy briefings. <http://www.caneurope.org/docman/land-based-emissions/2862-post-paris-briefing-paper-lulucf/file>.

Climate Change Authority (2014): Coverage, Additionality, and Baselines – Lessons from the Carbon Farming Initiative and other Schemes. Climate Change Authority of the Australian Government.

CORE – Carbon Offset Research and Education (n.d.): Additionality and Quantification Procedures. <http://www.co2offsetresearch.org/policy/AdditionalityBaselines.html>

de Wit, Elisa (2015): Country Snapshot: Australia. Norton Rose Fulbright. <http://www.nortonrosefulbright.com/knowledge/publications/132898/country-snapshot-australia>

Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

Decision No 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land-use change and forestry and on information concerning actions relating to those activities.

DEHSt (2015): Emissionshandel: In Deutschland keine Überführung (Carry-over) von CER, ERU und AAU aus der ersten Kyoto-Verpflichtungsperiode (2008-2012) in die zweite Kyoto-Verpflichtungsperiode. https://www.dehst.de/SharedDocs/mailing/DE/2015/15-10-28_Carry_Over.html.

Department of the Environment and Energy of Australia (n. d.): Greenhouse Friendly.
<https://www.environment.gov.au/climate-change/carbon-neutral/greenhouse-friendly>.

Department of the Environment and Energy of Australia (2013): Kyoto and non-Kyoto activities. <https://www.environment.gov.au/climate-change/emissions-reduction-fund/cfi/kyoto-and-non-kyoto-activities>.

Department of the Environment and Energy of Australia (2015): The safeguard mechanism – carbon offsets and avoiding double counting of emissions reductions. Fact sheet.

Department of the Environment and Energy of Australia (2016): Positive list activities.
<https://www.environment.gov.au/climate-change/emissions-reduction-fund/cfi/positive-list/activities>.

Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009.

Energy And Environment Management (2012): Voluntary carbon offsetting using forests on the rise despite climate risks.
<http://www.eaem.co.uk/news/voluntary-carbon-offsetting-using-forests-rise-despite-climate-risks>.

Eisbrenner, Katja; Gilbert, Alyssa (2009): Land use, land use change and forestry. Sectoral Emission Reduction Potentials and Economic Costs for Climate Change (SERPEC-CC). Ecofys.

Ellison, David; Lundblad, Matthias; Petersson, Hans (2014): Reforming the EU approach to LULUCF and the climate policy framework. Environmental Science and Policy. Volume 40 June 2014, p. 1-15.

European Commission (2015): Addressing greenhouse gas emissions from agriculture and LULUCF in the context of the 2030 EU climate and energy framework.
http://ec.europa.eu/smart-regulation/roadmaps/docs/2015_clima_003_lulucf-2030_en.pdf.

European Commission (2016a): The EU Emissions Trading System (EU ETS).
http://ec.europa.eu/clima/policies/ets/index_en.htm.

European Commission (2016b): Effort Sharing Decision.
http://ec.europa.eu/clima/policies/effort/index_en.htm.

European Commission (2016c): Factsheet on the Commission's proposal on binding greenhouse gas emission reductions for Member States (2021-2030). Brussels, 20 July 2016.
http://europa.eu/rapid/press-release_MEMO-16-2499_en.htm

European Commission (2016d): Proposal to integrate the land use sector into the EU 2030 Climate and Energy Framework. http://europa.eu/rapid/press-release_MEMO-16-2496_en.htm.

Federal Office For The Environment FOEN (2015): www.bafu.admin.ch/publikationen/publikation/01724/index.html?lang=de&download=NHZLpZig7t,lnp6lONTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpJCHd4N8g2ym162d-pYbUzd,Gpd6emK2Oz9aGodetmqaN19XI2ldvoaCVZ,s-.pdf.

Forestry Commission (2015): The Woodland Carbon Code and sequestration in context.
<http://www.forestry.gov.uk/forestry/inf-d-8jrm37>.

Forestry Commission (n. d.): Project Carbon Sequestration. <http://www.forestry.gov.uk/forestry/inf-d-8jue9t>.

Forestry Commission (n. d.): Management of Risks and Permanence.
<http://www.forestry.gov.uk/forestry/inf-d-8j5b82>.

Forestry Commission (2016a): Standard and Guidance. <http://www.forestry.gov.uk/forestry/inf-d-8hut6v>.

Forestry Commission (2016b): Registry: Rules of Use.
<http://www.forestry.gov.uk/forestry/INF-D-8VXMLF#7.%20transfer>.

Forestry Commission (2016c): Woodland Carbon Code Statistics Data to March 2016.
[http://www.forestry.gov.uk/pdf/wccmar2016.pdf/\\$FILE/wccmar2016.pdf](http://www.forestry.gov.uk/pdf/wccmar2016.pdf/$FILE/wccmar2016.pdf).

Foucherot, Claudine; Grimault Julia; More, Romain (2014): Contribution from I4CE on how to address double counting within voluntary projects in Annex B countries. Institute for Climate Economics. Paris.

Foundation for Climate Protection and Carbon Offset KliK (2015): <http://www.klik.ch/en/Foundation/FAQ/Legal-framework.54.html>.

Gasparini, Patrizia; Tosi, Vittoria; DiCosmo, Lucio (2009): Italy. In: Tomppo, Erkki et al. (ed.): National Forest Inventories – Pathways for Common Reporting.

Gliesche, Aric, BAFU (2016) Self-conducted interview on 5 August 2016.

Gold Standard (2015a): Double Counting Guideline. http://www.goldstandard.org/sites/default/files/documents/2015_12_double_counting_guideline_published_v1_1.pdf.

Gold Standard (2015b): Revisions to Gold Standard rules on double counting in the context of Green.

Certificate schemes. http://www.goldstandard.org/sites/default/files/documents/rule-update_clarification-of-double-counting-recs1.pdf.

Goldstein, Allie; Gonzalez, Gloria; Peters-Stanley, Molly (2014): Turning over a New Leaf. State of the Forest Carbon Markets 2014. Forest Trends' Ecosystem Marketplace.

Government of Sweden (2015): Five EU Member States decide to cancel surplus of Kyoto Protocol units. <http://www.government.se/articles/2015/12/five-eu-member-states-decide-to-cancel-surplus-of-kyoto-protocol-units/>.

Grimault, Julia – Project Manager at the I4CE (2017): Personal Communication.

Hamrick, Kelley; Goldstein, Allie (2015): Ahead of the Curve – State of the Voluntary Carbon Markets 2015. Forest Trends' Ecosystem Marketplace. Washington.

Hamrick, Kelley; Goldstein, Allie (2016): Raising Ambition - State of the Voluntary Carbon Markets 2016. Forest Trends' Ecosystem Marketplace. Washington.

Hood, Christina (2014): Addressing double counting of mitigation for diverse contribution types. Presentation to SBSTA. https://unfccc.int/files/focus/mitigation/application/mspowerpoint/iea_hood_sbsta40_8_june_2014_final.ppt.

Höper, H. (2007): Freisetzung von Treibhausgasen aus deutschen Mooren. Telma 37: 85-116. Hannover.

Hoozgard, Jelmer; von Unger, Moritz (2010): Domestic Offsets under Article 24a. Prepared for CDC Climat. http://www.klimaat.be/files/6413/8184/2550/Article_24a_EU_ETS_Roundtable_Background_Paper.pdf.

Intergovernmental Panel on Climate Change (2003): Good Practice Guidance for Land Use, Land-Use Change and Forestry. IPCC National Greenhouse Gas Inventories Programme. Published by the Institute for Global Environmental Strategies (IGES) for IPCC.

Intergovernmental Panel on Climate Change (2006): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and other Land Use.

Ivleva, Daria; Nett, Katharina; Treutwein, Regina; Wolters, Stephan (2015): Documentation of the Workshop Domestic Carbon Initiatives in Europe: Experiences and Opportunities. German Emissions Trading Authority (DEHSt). Berlin.

Joint Implementation UNFCCC (2016): Project Overview. http://ji.unfccc.int/II_Projects/ProjectInfo.html.

Kollmuss, Anja; Zink, Helge; Polycarp, Clifford (2008): Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Off-set Standards. Published by WWF Germany.

Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998).

Maluccio, S.; Romano, R.; Cesaro, L.; Marongiu, S.; Chizzotto, F (2016): The Forest Carbon Code in Italy and the carbon credit market - An example of Governance. In: Sekot, Toscani and Ungerböck (2016): Advances and Challenges in Managerial Economics and Accounting - International IUFRO Symposium, 9-11 May 2016, Vienna, Austria.

Marcu, Andrei; Alessi, Monica (2012): The Environmental Integrity of Linked Carbon Markets. Centre for European Policy Studies. https://www.ceps.eu/sites/default/files/20121116EnvironmentalIntegrity_V7.pdf.

McFarland, Brian Joseph (2011): Carbon Reduction Projects and the Concept of Additionality. Sustainable Development Law & Policy 11 (2): 15-18.

Merger, Eduard; Williams, Alwyn (2008): Comparison of Carbon Offset Standards for Climate Forestation Projects participating in the Voluntary Carbon Market: A comparison of Climate, Community & Biodiversity Standard (CCBS), CarbonFix Standard (CFS), Plan Vivo Systems and Standard, and AFOLU Voluntary Carbon Standard (VCS). University of Canterbury, Christchurch, New Zealand.

Meyer-Ohlendorf (2015): EU Effort Sharing Decision after 2020: Project-Based Mechanisms and Other Flexibility Instruments. Ecologic Institute. 9 July 2015.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2014): <http://www.mapama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/caluladoras.aspx>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2015a): El Gobierno aprueba el Plan PIMA presa con una dotación de 5 millones de euros para incentivar la reducción de emisiones de CO2 en el sector empresarial. <http://www.magrama.gob.es/es/prensa/noticias/el-gobierno-aprueba-el-plan-pima-empresa-con-una-dotaci%C3%B3n-de-5-millones-de-euros-para-incentivar-la-reducci%C3%B3n-de-emisiones-de-co2-en-el-sector-e/tcm7-401429-16>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2015b): Huella de carbono del Ministerio de Agricultura, Alimentación y Medio Ambiente. <http://www.magrama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/Huella-Carbono.aspx>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2015c): Guía para la elaboración de Proyectos Clima. http://www.mapama.gob.es/es/cambio-climatico/temas/proyectos-clima/guía_proyectos_clima_2015_tcm7-266215.pdf.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016a): Buscador de proyectos de absorción. http://www.magrama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/buscador_proyectos.aspx.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016b): Convocatorias y proyectos seleccionados. <http://www.magrama.gob.es/es/cambio-climatico/temas/proyectos-clima/convocatorias-proyectos-seleccionados/>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016c): Registro de huella de Carbono, Compensación y proyectos de absorción de dióxido de carbono. http://www.mapama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/2015_00_b006_tcm7-416239.pdf.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016d): Metodologías para la estimación de la Reducción de Emisiones de los Proyectos Clima (calculo ex – ante). <http://www.mapama.gob.es/es/cambio-climatico/temas/fondo-carbono/metodologias.aspx>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016e): Metodologías para el seguimiento y cálculo de la reducción de emisiones de Proyectos Clima (calculo ex – post). http://www.mapama.gob.es/es/cambio-climatico/temas/fondo-carbono/metodologias_ex-post.aspx.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016f): Buscador de organizaciones que han inscrito su huella de carbono. http://www.mapama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/buscador_empresas.aspx.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016g): Informes, datos, listados. <http://www.mapama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/Informes-datos-listados.aspx>.

Ministerio de Agricultura, Alimentación y Medio Ambiente (2016h): Sumideros de carbono. <http://www.mapama.gob.es/es/cambio-climatico/temas/mecanismos-de-flexibilidad-y-sumideros/sumideros-de-carbono/>.

Murray, Eliza (2012): The Carbon Farming Initiative. Australian Government. Department of Climate Change and Energy Efficiency. <http://www.oecd.org/tad/sustainable-agriculture/50257391.pdf>.

Nucleo Monitoraggio Carbonio (2014): Codice Forestale del Carbonio - Requisiti per progetti volontari di sequestro del carbonio.

de Wit, Elisa (2010): Carbon Farming Initiative. Norton Rose Fulbright.

Parliament of the Commonwealth of Australia (2014): Carbon Credits (Carbon Farming Initiative) Amendment Bill 2014- Explanatory Memorandum.

Peters-Stanley, Molly (2001): New Approaches to Old World Carbon: Closing the Loop on Supply and Demand for European Voluntary Emissions Reduction. Forest Trends' Ecosystem Marketplace.

Peters-Stanley, Molly (2012a): Bringing it Home: Taking Stock of Government Engagement with the Voluntary Carbon Market. Forest Trends' Ecosystem Marketplace.

Peters-Stanley, Molly; Hamilton, Katherine and Yin, Daphne (2012): Leveraging the Landscape State of the Forest Carbon Markets 2012. Forest Trends' Ecosystem Marketplace.

Prell, Cameron (2015): The Paris Agreement on Climate Change: A Practical Guide. Dec. 15.2015. <https://www.crowell.com/NewsEvents/AlertsNewsletters/all/The-Paris-Agreement-on-Climate-Change-A-Practical-Guide>.

Read, D.J.; Freer-Smith, P.H.; Morison, J.I.L.; Hanley, N.; West, C.C. and Snowdon, P. (eds). (2009): Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. The synthesis report. The Stationery Office, Edinburgh.

Real Decreto 163/2014, de 14 de marzo, por el que se crea el registro de huella de carbono, compensación y proyectos de absorción de dióxido de carbono. Rico, Javier (2016): Cinco millones más para los Proyectos Clima de 2016. <http://www.energias-renovables.com/articulo/cinco-millones-mas-para-los-proyectos-clima-20160331>.

Romano et al. (2015a): The Effects of Climate Change on the Multifunctional Role of Basilicata's Forests: The Effects Induced on Yield and CO₂. In: The Sustainability of Agro-Food and Natural Resource Systems in the Mediterranean Basin. Vastola, Antonella (ed.).

Romano et al. (2015b): Italian Greenhouse Gas Inventory 1990-2013 – National Inventory Report 2015. Rapporti 231/2015.

Savy, Davide; Nebbioso, Antonio; Córdor, Roció Dánica; Vitullo, Marina (2011): The Kyoto Protocol and European and Italian Regulations in Agriculture. In: Piccolo, Alessandro (ed.): Carbon Sequestration in Agricultural Soil.

Schneider, Lambert; Kollmuss, Anja; Lazarus, Michael (2014): Addressing the risk of double counting emission reductions under the UNFCCC. Stockholm Environment Institute, Working Paper 2014-02.

Stockholm Environment Institute and ghg Management Institute (2011a): CO₂ Offset Reach. <http://www.co2offsetresearch.org/consumer/location.html>.

Stockholm Environment Institute and ghg Management Institute (2011b): VER+ (Verplus). <http://www.co2offsetresearch.org/policy/VERplus.html>.

Szabo, Mike (2015): Paris Agreement rings in new era of international carbon trading. <http://carbon-pulse.com/13339/>.

Tedeschi V, Lumicisi A, (2006): L'attuazione del Protocollo di Kyoto nel settore forestale: il punto sulla situazione attuale e le prospettive future. *Forest@ 3* (1): 3-5.

Thomson Reuters (2016): Carbon Market Monitor - America to the rescue: Review of global markets in 2015 and outlook for 2016-2018. <http://climateobserver.org/wp-content/uploads/2016/01/Carbon-Market-Review-2016.pdf>.

Tronquet, Clothilde; Grimault, Julia and Foucherot, Claudine (2017): Etude Climat #54: Project VOCAL – Potentiel et déterminants de la demande volontaire en crédits carbone en France. I4CE, Institute for Climate Economics. <http://www.i4ce.org/wp-core/wp-content/uploads/2017/01/Potentiel-et-d%C3%A9terminants-de-la-demande-volontaire-en-cr%C3%A9dits-carbone-en-France-9.pdf>

TÜV Süd (n.d.): VER+ A robust Standard for Verified Emission Reductions (Criteria Catalogue). http://www.tuev-sued.de/uploads/images/1179142340972697520616/Standard_VER_e.pdf.

Umweltbundesamt (2015): Statutes and regulations. <https://www.umweltbundesamt.de/en/topics/economics-consumption/products/fluorinated-greenhouse-gases-fully-halogenated-cfcs/statutes-regulations>.

United Nations Environment Programme (2015): The Emissions Gap Report 2015 - A UNEP Synthesis Report.

United Nations Framework Convention on Climate Change (2006): Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005. FCCC/KP/CMP/2005/8/Add.1. 30 March 2006.

United Nations Framework Convention on Climate Change (2008): Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount.

United Nations Framework Convention on Climate Change (2012): Report on the implementation of domestic action by Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol based on the information reported in their national communications. FCCC/SBSTA/2012/INF.9. 9 November 2012.

United Nations Framework Convention on Climate Change (2014a): Canada's withdrawal from the Kyoto Protocol and its effects on Canada's reporting obligations under the Protocol. Compliance Committee, CC/EB/25/2014/2, 20 August 2014.

United Nations Framework Convention on Climate Change (2014b): Reporting and accounting of LULUCF activities under the Kyoto Protocol. http://unfccc.int/land_use_and_climate_change/lulucf/items/4129.php.

United Nations Framework Convention on Climate Change (2014c): The numerical value for forest management under Article 3, paragraph 4, of the Kyoto Protocol inscribed for Italy. https://unfccc.int/land_use_and_climate_change/lulucf/items/4135.php.

Valatin, Gregory (2011): Forests and carbon: a review of additionality. Forestry Commission: Edinburgh.

Van Der Gaast, W.; Oikonomou, V.; Flamos A. (2013) Domestic Offsets in Practice: Modalities and Implications. Energy Sources, Part B: Economics, Planning, and Policy 8 (2): 144-153.

Verified Carbon Standard (2012): Double Counting: Clarification of Rules. VCS Policy Brief 1 February 2012.

Verified Carbon Standard (2016): VCS Recognized as Offset Mechanism under Draft South African Carbon Tax Regulation. <http://www.v-c-s.org/vcs-recognized-as-offset-mechanism-under-draft-south-african-carbon-tax-regulation/>.

West, Vicky (2015): Minimising double-counting of emissions reductions in the UK, unpublished position paper.

West, Vicky (2016): Number of validated PIUS already sold. Personal communication.

Wolters, Stephan; Nett, Katharina; Tänzler, Denis; Wilkening, Christian; Götz, Markus; Krebs, Jan-Marten; Vogel, Dana (2015): Aktualisierte Analyse des deutschen Marktes zur freiwilligen Kompensation von Treibhausgasemissionen. Climate Change 02/2015. Umweltbundesamt.

Woodland Carbon Code (2014): WoodlandCarbon Code - Requirements for voluntary carbon sequestration projects. Version 1.3 July 2014.

Woodland Trust (2014): A Guide to Woodland Carbon for Business.

<https://www.woodlandtrust.org.uk/mediafile/100390345/A-guide-to-woodland-carbon-for-business.pdf>.

World Bank (2013): Forest area (% of land area).

<http://data.worldbank.org/indicator/AG.LND.FRST.ZS?end=2013&start=1990>.

World Bank (2015): Forest area (% of land area). <http://data.worldbank.org/indicator/AG.LND.FRST.ZS>.

Zwick, Steve (2016): The Road From Paris: Green Lights, Speed Bumps, And The Future Of Carbon Markets.

<http://www.ecosystemmarketplace.com/articles/green-lights-and-speed-bumps-on-road-to-markets-under-paris-agreement/>.

