HOW CAN CONSERVATION PROGRAMS EFFECTIVELY INTERACT WITH ENVIRONMENTAL MARKETS?

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I. INTRODUCTION

Environmental payments are increasingly being used to help manage natural resources in a sustainable manner. Federal conservation programs including the Conservation Stewardship Program (CSP) and Environmental Quality Incentives Program (EQIP) use public funds to help landowners plan and implement practices that improve soil, water, plant, air, habitat and related resources. The environmental benefits provided by these programs are often viewed as public goods that accrue to society. Private funding is also being used to incentivize resource stewardship through environmental markets developed in response to regulatory caps on pollution. These environmental markets allow regulated entities to purchase offsets to meet a portion of their compliance obligations more efficiently. As additional markets develop, greater coordination between public programs and private investments will be needed to ensure that environmental markets and conservation programs work together.

In the absence of a national policy, it has been left to individual states and environmental market administrators to make decisions regarding the sale of credits generated from federally funded practices. For example, most regulated water quality trading markets have placed some restriction on credit generation with practices funded in whole or in part by federal payments, either allowing landowners to sell credits only in proportion to their private investment, or prohibiting federally funded or cost-shared practices from generating credits for sale. The water quality trading programs that place restrictions on the use of federal funds generally do so as a way to ensure that credits represent additional pollution reductions to preserve the integrity of the market.

As environmental markets mature, conservation payments and markets may compete with one another and/or create uncertainty over landowner eligibility, the additionality of environmental credits, and credit pricing. Without coordination between environmental markets and federal payments, environmental benefits may be overpriced or double-counted and result in an outcome that is neither environmentally nor socially optimal.

In this paper, we ask how payments and environmental benefits from federal conservation programs and environmental markets could more effectively interact toward the goal of improving environmental conditions and

generating the greatest net environmental benefit for a given investment. First, we explore the implications of the current structure of cost-share programs and their interactions with environmental markets. Second, we discuss the need for better coordination of water quality markets within the context of environmental markets more broadly. Third, we discuss the potential opportunities and challenges of stacking environmental payments. Finally, we present potential strategies that could be employed to better coordinate programs.

II. ENVIRONMENTAL PAYMENTS: WHO PAYS AND WHO BENEFITS?

Federal conservation programs encourage landowners to adopt practices that have multiple environmental benefits. Conservation practices are partially funded by taxpayer dollars and both the landowner and the public benefit from improvements in water quality, air quality, wildlife habitat, and other provisioning ecosystem services. The landowner may also benefit from direct payments, improved on-farm stewardship and long-term sustainability, and a share of the public benefits that accrue to society. Program applications may be evaluated based on resource concerns and expected environmental benefits; for example in the CSP program, the Conservation Measurement Tool is used to estimate benefits of conservation practices. However, payment rates are not based solely on the level of environmental benefit, but are based on a variety of factors, including practice cost (EQIP, Wildlife Habitat Incentive Program (WHIP)), land value (easement programs), or average rental rate (Conservation Reserve Program (CRP)).

In environmental markets, projects are funded by private dollars and the credits associated with these projects belong to the landowner or project developer. In the case of regulated environmental markets, the market is driven by a regulatory cap on pollution loads or habitat loss and credits generated through mitigation activities are sold as offsets to entities regulated under the cap. Many water quality markets implement retirement ratios (also known as environmental benefit ratios) to ensure that the market achieves greater environmental benefits than what would have been achieved under the permit through a command-and-control approach. In these cases, regulated entities must purchase credits for a greater amount of pollution than they intend to offset, typically on the order of 10 percent or greater.[1]

Thus, in a water quality market that employs a retirement ratio, a regulated entity that purchases 100 pounds of nitrogen credits per year must retire a portion of these credits towards net water quality improvement, but the majority of the water quality benefits offset the pollutant load from the

BOX 1. ADDITIONALITY IN ENVIRONMENAL MARKETS

Regulatory additionality assures that projects generate environmental benefits beyond what is required by law.

Temporal additionality establishes a point in time before which projects are not eligible for market participation, thus attempt to honor only "new" practices.

Baseline additionality establishes a minimum level of performance that landowners must achieve—or a set of practices they must implement—before they can trade.

Financial additionality establishes that projects would not have occurred without the revenue provided by the market or program.

Double counting is when two or more individuals or organizations claim ownership of the same environmental benefits.

regulated source. In addition, there are often co-benefits or positive externalities associated with the implementation of conservation practices (e.g., carbon sequestration, soil quality) that accrue to society.

III. COST-SHARE AND ENVIRONMENTAL MARKETS

As environmental markets continue to emerge, landowners will increasingly be faced with multiple available incentives for conservation practices. In order to optimize investment in conservation, a close examination of interactions between conservation payments and water quality markets is needed, both to address financial additionality concerns of allowing landowners to participate with publicly funded practices and to coordinate payments as markets for multiple services develop.

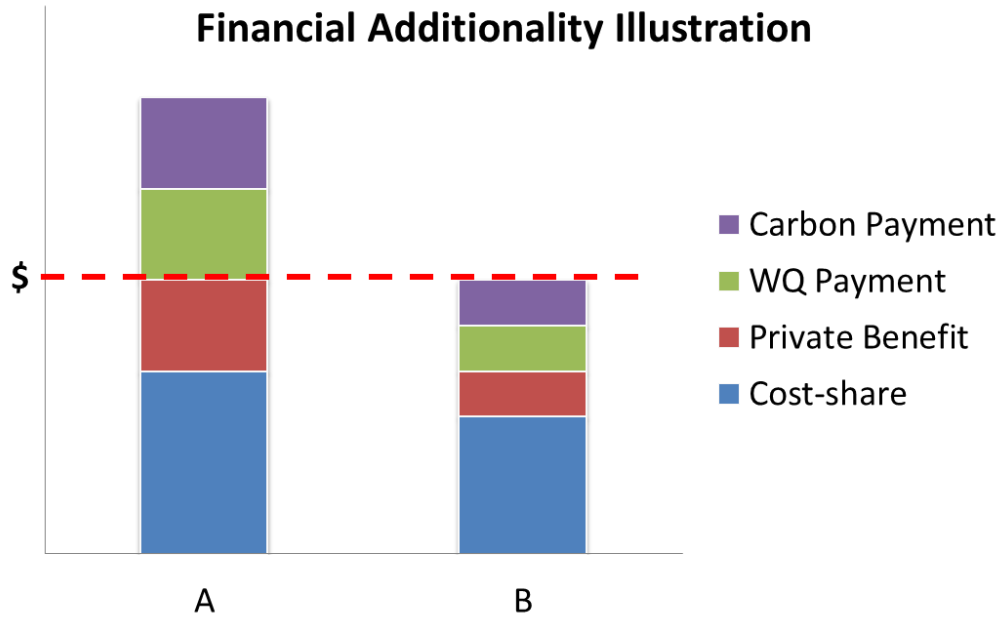
A. THE WATER QUALITY MARKET PERSPECTIVE

U.S. Department of Agriculture (USDA) regulations in many of the Farm Bill programs (e.g. EQIP, CRP, and CSP) assert no direct or indirect interest on credits that landowners may generate using publicly funded conservation practices.[2] Thus, from the perspective of USDA, landowners may participate in environmental markets without restriction. U.S. Environmental Protection Agency (EPA) is officially silent on the issue.

From the perspective of water quality market administration, however, generation of credits with public funds can create problems. In order for water quality trading programs to be effective and achieve their environmental goals, there must be assurances that credits are not generated through the adoption of practices that landowners would have (or should have) implemented without the incentive provided by the market; in other words, reductions must be additional (see Box 1 for a discussion of additionality tests). In particular, when considering the use of cost-share to generate credits in water quality markets, two types of additionality concerns arise: financial additionality and double counting.

For example, if a landowner receives cost share to implement a riparian buffer and then decides to sell the resulting water quality benefits into the water quality market, there are some additionality concerns that should be addressed. If the conservation payment alone provides adequate incentive for a landowner to implement the riparian buffer (even if the payment does not cover the full cost of the practice), then the resulting water quality improvements may not be considered additional for purposes of the water quality market (Figure 1). In addition, some might consider that the benefits (in whole or in part) that are derived from a riparian buffer that is paid for through cost share should convey to society, in which case selling these benefits in a water quality market may constitute double counting. In cases where water quality trading is being used to meet a regulatory cap, honoring credits that are non-additional or which are double counted will result in a failure to achieve the reductions necessary to offset pollutant loads.

Figure 1: Illustration of financial additionality when dealing with multiple payments for environmental benefits. The dashed line denotes the theoretical payment level at which the landowner has adequate incentive to implement a practice. In scenario A, the landowner has adequate incentive to implement the practice with the combination of the cost-share payment and personal incentive. In this case, the project would fail financial additionality criteria in water quality markets. In Scenario B, the landowner would need cost-share payments coupled with market payments from the water quality market and carbon market in order to provide adequate incentive to implement the practice. In this case, market participation would meet financial additionality criteria. While it is not possible to prove financial additionality because it requires knowledge of the counterfactual scenario in which incentives did not exist, as well as knowledge of the value of the private benefit accruing to the landowner, markets have developed tools that attempt to increase the chance that credits sold are additional.



Water quality markets typically adopt one of three approaches to crediting publicly funded practices. There are programs that do not allow cost-shared practices to generate credits; however, the practices are often allowed to meet and maintain baseline requirements. Alternately, some programs, such as Pennsylvania's nutrient trading program, allow cost-shared practices to generate credits. A third approach to cost-shared practices, adopted by the Ohio River Basin trading pilot[3] and the Willamette Partnership, has been to allow participation of publicly funded practices, but to pro-rate the credits generated from the project in proportion to the share of public investment that was received by the landowner. For example, if a landowner received a conservation payment that covered 75 percent of the cost of a forest buffer, he could sell only 25 percent of the nitrogen reductions associated with the buffer on the water quality market.

The pro-rated option adopted by some water quality trading programs could in fact increase enrollment in conservation programs. In the Tualatin watershed (Oregon), Clean Water Services (CWS) offset their effluent temperature requirements by paying farmers to plant riparian buffers rather than installing cooling devices.[4]

Payments to farmers were a combination of Conservation Reserve Enhancement Program (CREP) payments and payments directly from CWS. CREP funding in the watershed was historically under-subscribed. The decision was made to leverage CREP funding with CWS funding because farmers were familiar with and comfortable with the CREP program, making program sign-up and enrollment easier than if CWS had gone about enrolling farmers on its own. By combining public and private payments, CWS was able to create enough of an incentive for farmers to enroll valuable stream-side properties in the program and generate the needed temperature credits.

Even in the case of some of the Chesapeake Bay states where cost-shared practices cannot generate credits, conservation programs are seen as a necessary tool for farmers to achieve the trading eligibility baseline. In this way, the two programs do not compete, rather the conservation programs dovetail with market participation.

B. EMERGENCE OF MULTIPLE MARKETS AND STACKING

In addition to water quality markets, agricultural producers may be able to participate in environmental markets for other ecosystem services, like California's cap-and-trade market for carbon credits or emerging markets for habitat. The concept of stacking—allowing landowners to receive payments for multiple environmental benefits arising from practices they implement on their land—is central to coordination of the many financial incentives that can drive market development. Stacking can take many forms, including vertical stacking, horizontal stacking, temporal stacking, and payment stacking.

- Horizontal stacking refers to the sale of different environmental benefits from spatially distinct projects on the same property.
- Vertical stacking refers to sale of more than one benefit derived from a single practice; for example, selling carbon credits and nitrogen credits generated by a single riparian buffer.
- Temporal stacking refers to payments for multiple benefits derived from the same practice, but with payments or different benefit types distributed over time.
- Payment Stacking refers to receiving payments from multiple sources for a given practice.

An analysis of the opportunities and drawbacks related to stacking can help lend clarity to the structure of conservation programs (who pays and who benefits) and could provide a framework for the programs to interact more effectively with markets toward the goal of increasing conservation.

Horizontal stacking does not typically raise concerns for water market developers because projects are distinct even though they occur on the same property. Vertical stacking and payment stacking, however, tend to cause controversy and debate among market practitioners because they raise additionality issues. Some market developers have embraced the theory of vertical stacking as long as mechanisms are in place to ensure additionality. Maryland, for example, has endorsed the idea that landowners implementing practices that improve water quality and sequester carbon should be able to participate in voluntary carbon markets as well as Maryland's water quality market. The state views stacking as a means to provide adequate incentives for implementation of relatively expensive practices that have a wide range of environmental benefits, including forest buffer implementation and wetland restoration. However, in reality, vertical stacking opportunities have not materialized and thus additionality issues associated with vertical stacking have mostly been addressed in theory only.

Unlike vertical stacking, payment stacking is an issue that emerging environmental markets, especially water quality markets, have had to confront in practice, not just in theory. In particular the issue of stacking of federal cost-share payments with market payments is the source of considerable controversy in the water quality markets and as such is particularly urgent and ripe for discussion.

C. ADVANTAGES TO STACKING

Potential advantages of stacking include the ability to incentivize high quality practices and increased adoption of conservation practices by providing more revenue than a single program could offer.

INCENTIVIZING HIGH QUALITY PRACTICES

Some practices generate a broader suite of environmental benefits than others. For instance, reduced fertilizer application generates water quality benefits and air quality benefits, whereas implementing a riparian buffer could also provide soil quality, habitat, climate, and aesthetic benefits. Stacking could capture the multiple benefits associated with higher quality practices, leading to provision of an economically efficient incentive for landowners to implement projects that require larger investment and provide a greater level of environmental benefit.

Allowing stacking could encourage integrated approaches that support more comprehensive management of ecosystem services. Since current markets are developing independently, there are constraints in how well the systems may be integrated. More integrated management could lead to improved overall ecosystem function and condition as well as clarity for project developers and landowners.

INCREASED ADOPTION OF CONSERVATION PRACTICES

By providing the potential to earn more revenue through multiple payments, the option for stacking may encourage greater overall adoption of conservation practices. In some cases, projects would not be viable to a landowner with the incentive provided by a single market alone. In these cases, allowing projects to stack payments may lead to more environmental benefits than would otherwise occur. Larger payments may also be necessary to out-compete conversion to environmentally detrimental land uses.[5]

Linking disparate environmental payments could lead to the socially optimal, least-cost environmental outcome. For example, Woodward (2011) describes a theoretical case in which participation in two coordinated environmental markets could lead to greater net benefits than if market participation was restricted to one market. Woodward's example pertains specifically to

BOX 2. CREDIT PRICES AND INCENTIVES IN A STACKED SYSTEM

One uncertainty regarding stacking is the effect on credit prices in individual markets and the cumulative impact on the overall incentive to landowners to adopt Best Management Practices (BMPs). Over time, greater supply of projects will lead to increased credit supply and lower credit prices, all else being equal. In a single-credit system, low credit prices could discourage potential sellers from entering the market. Even though prices may fall in individual markets, the expected revenue of combined payments may be large enough to maintain incentive for increased BMP adoption, but this depends on the specific prices, elasticity of demand, levels of conservation payments, transaction costs, and other factors. Market developers and policy makers will need to consider how responsive their programs are to shifts in credit prices and what impact this will have on potential sellers.

setting caps in two regulatory markets, with close coordination between them, but the implications are similar when dealing with the combination of an environmental payment through cost share with environmental markets.[6]

If stacking leads to increased project development and greater credit supply, the price of credits may fall, presenting more opportunities for buyers. The effect that the lower prices would have on the incentive for landowners to participate is uncertain. See Box 2 for a discussion of potential impact to credit prices.

D. CHALLENGES OF STACKING

Stacking could potentially drive increased adoption of conservation practices and optimize the environmental performance of individual programs. However, if not done properly, stacking could credit non-additional benefits, undermining the integrity of water quality markets.

ADDITIONALITY ISSUES

While stacking payments can theoretically lead to greater adoption of conservation practices, it is critical that market policies related to stacking are designed to encourage additionality. As previously discussed, stacking has the potential to violate market criteria for financial additionality and double-counting. Financial additionality requires that only projects that would not have gone forward without the incentive provided by markets will generate reductions that are additional to what "would have" happened in the absence of markets. In essence, when cost shared practices are allowed to generate credits there is a concern that those practices—and their resulting environmental benefits—may have occurred anyway, and thus are not additional.

Another potential additionality issue that may occur as a result of stacking is double-counting. If a landowner receives a payment for an environmental benefit that has already accrued elsewhere (either to society or to another market), then double-counting has occurred and those benefits cannot be considered additional regardless of whether financial additionality tests have been met.[7,8] Any double-counted credits that were sold to offset pollution load would fail to provide "real" environmental benefit to offset the load as those environmental benefits were already credited towards another market or program.

To ensure that stacking payments does not violate additionality tests, federal cost-share programs and environmental markets would need to provide explicit instruction on how cases involving multiple payments should be handled and for each individual program to have the capacity to disaggregate the environmental benefits arising from each project.

TIMING OF PAYMENTS

When designing stacking policies, the timing of practice adoption and payments is a critical and complex issue that must be addressed. Landowners may receive a conservation payment and later become interested in joining a water quality market, or enter a water quality market and later become interested in selling credits in a carbon market. If market participation is initiated at different times, it may produce market inefficiencies including payment for non-additional benefits and distortion of price signals. When these effects occur, the outcome may be less than optimal environmental benefits per dollar investment. When coordinating participation in multiple

markets or between cost-share programs and markets, policy makers will need to develop consistent procedures that govern how the timing of participation in multiple programs will impact eligibility and payments.

COMPLEXITY

Coordination between distinct environmental payment systems is a key prerequisite to increasing their efficiency and improving environmental outcomes. Designing environmental payment programs and associated rules is a complex process. For example, from a practical standpoint, it is more difficult to establish additionality when dealing with practices that provide multiple environmental benefits. In addition, there are multiple agencies involved with markets, for instance EPA, Army Corps of Engineers, Fish and Wildlife Service, Department of Agriculture, and state governments that oversee state markets. Coordinating activities among a large number of organizations with practices already established will be difficult.

Better coordination between markets and cost-share programs would likely mean that rules of existing programs would need to be altered. In particular, there is potential for confusion and added complexity based on what different programs and markets are paying for. As it stands, different payment programs have different metrics to account for payments and environmental benefits—for example, credits in wetland programs are typically area-based whereas water quality and carbon markets have a defined accounting standard based on the amount of pollution mitigated (pounds nitrogen, tons CO_2e). By contrast, conservation programs pay for practices rather than individual benefits. Restructuring conservation payments to align with individual benefits would be both programmatically and scientifically challenging.

INCREASED TRANSACTION COSTS

Transaction costs may increase when dealing with multiple disparate markets where environmental benefits will need to be measured, verified, monitored, and evaluated through different systems. However, with a well-coordinated stacking system that is administered through one central organization, transaction costs could be less than stacking with different market systems.[9]

IV. STRATEGIES FOR COORDINATION

Stacking environmental payments can lead to increased environmental benefits if multiple programs are well-coordinated and rules are established to preserve the environmental integrity of the payments; however, most environmental payment systems have developed independently. In order for conservation programs and markets to operate more effectively, fundamental changes to the structure and payments in conservation programs would likely be required and the multiple agencies and organizations administering environmental payment programs will need to agree upon best practices for coordination. Below, we describe potential approaches to cost-share program design and market coordination that limit the potential for additionality violations and double-counting.

A. PAY FOR BENEFITS

A movement from paying for practices to paying for benefits is the most explicit way for cost-share programs to interact with markets and avoid the potential for double counting. A payment-for-benefits scheme would require conservation programs to establish disaggregated, discrete payments for the services associated with a proposed practice. In this case, a landowner could accept cost share funding for certain benefits (e.g., habitat) and choose to

sell other benefits (e.g., water quality) in markets. As illustrated in Figure 2, landowners could receive multiple payments for discrete services such that double counting would not be an issue. If conservation payments compensated a landowner for individual benefits, then a landowner could choose to forego public payment for water quality in favor of participating in the water quality market. But he could receive public payment for other services, for instance carbon sequestration or habitat.

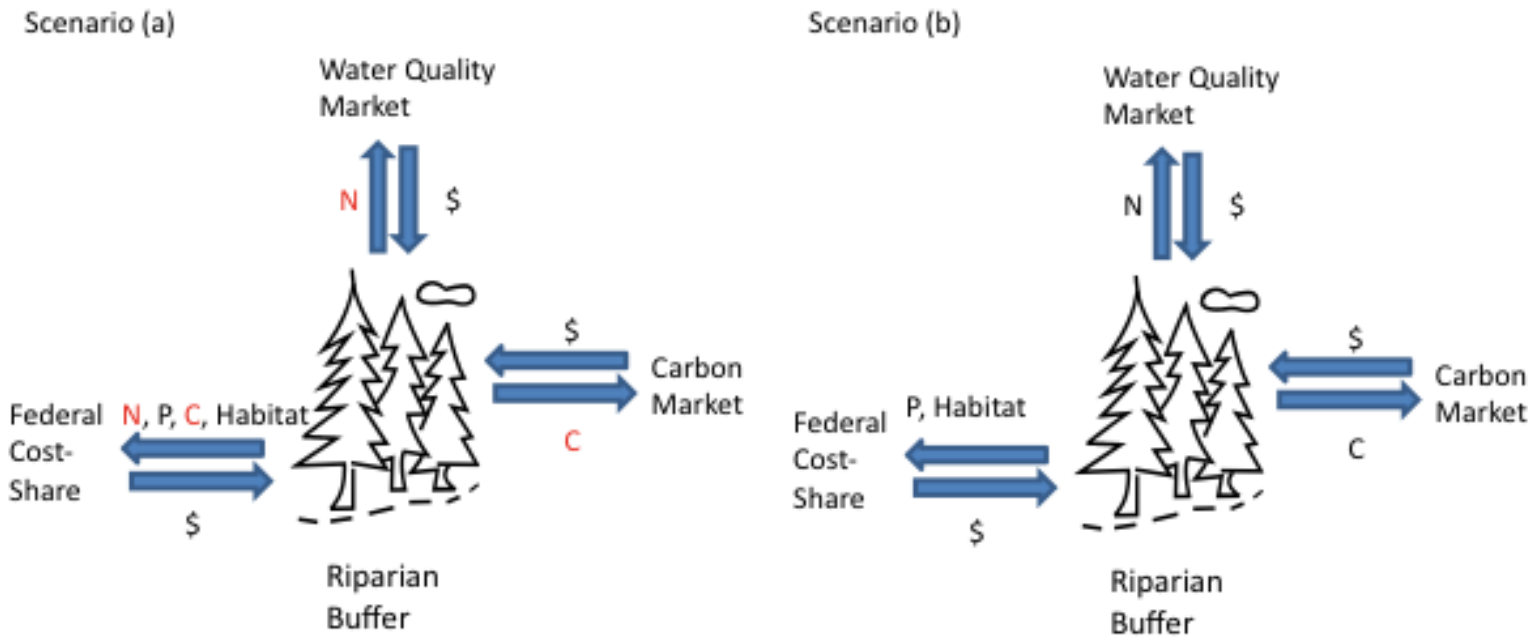
There are a number of considerations that would factor into a payment-for-benefits program. First, the program administrator would need to choose methods on which to base payments for particular services. Some services have already been monetized through the existence of environmental markets and thus determining their payment rate should be relatively straightforward. For these services, the administrator would need to decide which markets they use to set their rates, but they will have a basis to make this determination. Some services—for example, aesthetic benefits—are not typically monetized and the administrator would need to decide how, if at all, to account for these benefits in their payments. Other services have been monetized, but typically on a unit area basis and the administrator would need to determine how to value these types of benefits in coordination with payments on a unit benefit basis. Second, eligibility rules will need to be determined based on the timing of practice adoption and market participation. Third, a payment-for-practices program inherently treats all landowners equally, leaving the ultimate revenue that one can receive up to the landowner's determination of the financial opportunities available by pursuing some combination of conservation and market payments. Conservation programs would need to decide whether to continue offering unique benefits for underserved and limited resource participants and, if so, how to factor these benefits into the payment. One option may be to offer an additional payment as a subsidy toward the upfront cost of practice adoption that is not related to any particular environmental benefit, but which is only available to participants meeting underserved or limited resource criteria.

B. ADDRESS FINANCIAL ADDITIONALITY

There may be many reasons why a landowner would choose to adopt a conservation practice with or without a financial incentive—for instance, on-farm benefits or environmental values. Thus, it is difficult to determine financial additionality because it requires knowledge of a hypothetical, counterfactual situation of what the landowner "would have" done in the absence of a market of cost-share payment.

Because no perfect financial additionality tests exist, programs can develop policies which reduce the likelihood that financial additionality is violated. These policies may include proportional payment, repayment, and bidding down.

Figure 2: Stacking scenarios involving cost share payments and environmental markets. Scenario (a) represents the current situation: cost share payments for a practice that provides multiple benefits. In this case, nitrogen and carbon benefits (shown in red) are double counted when the practice generates credits in water quality and carbon markets. Scenario (b) represents a hypothetical situation in which federal cost share payments are based on specific environmental benefits. In this case, the landowner only receives payments for phosphorus and habitat benefits, and then receives payments for nitrogen and carbon in the respective markets. In this case, double counting does not occur.



PROPORTIONAL PAYMENT

Proportional payment or proportional crediting is already being used in water quality markets where stacked payments are allowed. In Oregon, for example, landowners are allowed to generate credits from practices paid for through cost-share only for the proportion of the practice that was privately funded. As currently adopted in several water quality trading programs, the proportional crediting policy is meant to address both financial additionality and double-counting.

Under a more coordinated approach to cost-share and markets, policymakers might also consider a related approach that would discount a proportion of the federal payment to account for participation in other markets. This strategy is similar to the disaggregated benefits payment, but rather than calculating a payment for each individual benefit, a specified discount percentage could be applied based on water quality market credit prices.

Policy makers would need to consider the timing of a landowner's decision to participate in markets and the effect this has on cost-share payment rates. The program administrator could require landowners to decide which benefits they want to cover through cost share and adjust payment rates accordingly. This process would require use of registries or other tracking tools to prevent the over-selling of benefits.

REPAYMENT

Another option to coordinate the programs in a way that attempts to address financial additionality concerns would be to allow the farmer to repay a portion of the cost share funds in order to participate in an environmental market. Funds could be deposited into a revolving fund used to implement additional practices. This option may not necessarily be viable in every case because of the temporal additionality restrictions in place in water quality and carbon markets that prohibit existing projects from generating credits. The repayment option would only work for projects developed in a short enough timespan that they are eligible to generate credits in water quality or other markets.

BIDDING DOWN

Allowing bidding down for cost-share applicants is another possible way to address financial additionality concerns for projects receiving payments from other environmental markets. Currently, most cost-share payments pay for practices based on a fixed payment schedule. Bidding down would allow producers to lower the price they are willing to accept for implementing a given practice or suite of practices. The practice of bidding down in federal cost-share programs was eliminated in the 2002 Farm Bill because it was seen as inequitable for limited resource farmers who could not afford to lower their bids. However, if multiple markets exist in a given area, bidding down could be an effective and efficient way to ensure that the public is not overpaying. Farmers' cost-share bids would take into account the environmental payments from other markets that they have received or plan on receiving. While bidding down may result in greater efficiencies and reduce risks of financial additionality violations, it would need to be coupled with the disaggregated benefits approach in order to ensure equity among producers as well as to ensure that there is no double counting. If bidding down were not coupled with such an approach, producers who accept private environmental market payments may be able to bid down their cost-share price and as a result improve their chances of receiving cost-share funding, even though they may provide less societal benefit per dollar spent. If bidding down were coupled with the disaggregation approach, the bid price as well as the portion

of benefits from the project that would accrue to society would be transparent and funding decisions could be made accordingly.

C. TOOLS FOR COORDINATION

Cost-share programs and environmental markets could also improve social outcomes and efficiency through shared infrastructure like registries, which could track projects and environmental benefits over the life of the practice. Developing the types of metrics and tools that can be used to quantify multiple benefits from a given project would create consistency and potentially reduce transaction costs associated with multiple markets. For instance, a single tool used to evaluate an agricultural operation for a cost-share program might simultaneously estimate nutrient reductions and carbon benefits eligible for sale in environmental markets. There are tools currently in development that provide the infrastructure necessary to track multiple environmental benefits. For example, the Nutrient Tracking Tool (NTT) is a process-based model that is being used to estimate credits in the Chesapeake Bay water quality trading programs can account for nitrogen, phosphorus, and sediment. Market and federal payment programs could also coordinate on elements such as timing provisions, verification procedures, landowner eligibility requirements, and so forth in order to promote greater consistency between markets, thereby creating greater efficiencies, potentially lowering transaction costs, and improving social outcomes.

The Willamette Partnership has developed a multi-credit approach that allows stacking of credits through a centralized accounting system. The system allows landowners to simultaneously generate credits for wetlands, water quality, prairie habitat, and salmon habitat. They have created a tool that enables users to register and track the multiple benefits associated with practices over time, even those that are not currently being sold. This tool is an essential element of the Willamette's approach to stacking.

V. CONCLUSION

As the landscape for environmental markets becomes more crowded and complex, it is important that consistent policies and approaches emerge that govern the interaction of these markets, especially as they pertain to agricultural offsets. Coordinating environmental payments through a unified system with clearly designed ecologically sound stacking principles could maximize investments in conservation, promote high-quality projects, and limit transaction costs. However, to date environmental programs have not achieved effective coordination. In order to ensure that both cost-share programs and environmental markets achieve socially optimal outcomes and preserve environmental integrity, there should be clarity and consistency in how multiple payments interact.

For conservation programs and environmental markets to interact efficiently, the current payment structures will need to be reevaluated. Ideally, where stacking is allowed, cost-share programs and environmental markets would have a coordinated approach to ensuring that credits are both financially additional and that double counting does not occur. Paying for benefits, not for practices, would improve the efficiency of conservation investments. This approach also allows for disaggregation of environmental benefits which is critical for avoiding double-counting. If coupled with other strategies such as bidding down, repayment or proportional payment, environmental markets can also minimize risks of violating financial additionality when payments are stacked. Establishing clear policy on eligibility, timing, and verification requirements would also reduce confusion for buyers and sellers wishing to participate in conservation programs and environmental markets.

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