



# 10

## Interaction of Conditional Incentives for Ecosystem Conservation with Tenure Security: *Multiple Roles for Tenure Interventions*

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### The Role of Tenure in PES Programs

Property rights are central to the concept of conditional incentives, such as used in agri-environmental programs that pay farmers to conserve natural resources. In the Global South, this policy instrument has become known as PES, or payment for ecosystem services, and has inspired REDD+, or Reducing Emissions from Deforestation and Forest Degradation. The potential for REDD+ to make significant contributions to both climate change mitigation and conservation of tropical forests has focused attention on securing forest land tenure to enable conditionality.

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We examine the evidence on how tenure security interacts with participation in PES by individual land stewards, showing that the relationship is multidimensional and bi-directional. We then consider the relationship between tenure systems and implementation of REDD+, which depends on the type of conditionality and the type of tenure challenge faced. Secure tenure is widely understood to be a necessary enabling condition for the implementation of REDD+, but we show that tenure security can also be an integral part of conditional incentives. We illustrate that with the tenure interventions supported by the Dedicated Grant Mechanism (DGM) for Indigenous Peoples and Local Communities (IPLC) in Peru and Indonesia. The DGM sought to clarify tenure rights and strengthen tenure security over forest resources for both Indigenous and other rural populations, but applied different concepts of conditionality to different groups. In both Indonesia and Peru, conditionality was embedded in the communal land titles that recognize customary tenure rights, while the social forestry program in Indonesia was implemented as both a prerequisite and a reward for participation in REDD+ in state forests.

Direct conditional incentives—often monetary payments—to forest stewards have been promoted as a way to sustain the provision of critical ecosystem services in forest landscapes (Duchelle et al., 2018; Robinson et al., 2018). The idea is that paying people directly for the provision of ecosystem services is the most assured and efficient way to secure sustained conservation of these ecosystems over time (Ferraro & Kiss, 2002; Bruce et al., 2010). In theory, recognizing the value of public goods and services, and creating economic incentives for their protection should safeguard them (Engel et al., 2008; Wunder et al., 2008). In practice, the additionality of PES programs may be undercut by factors such as participation by landowners who would have conserved ecosystems even without payment. The limited evidence available on effectiveness comes primarily from evaluations of the PES programs in Costa Rica and Mexico, which find either no impact or very small positive impacts of participation on forest cover (Samii et al., 2014; Alix-Garcia & Wolff, 2014).

Despite this limited evidence, the core principles behind PES were rapidly adopted in what was expected to become the largest international conservation scheme for tropical forests: REDD+. According to Sunderlin

et al. (2018), REDD+ was “to create conditional incentives based on performance to prevent forest conversion (REDD) and for enhancing forest carbon stocks (the +).” Alternative strategies for implementing REDD+ have been tested in hundreds of REDD+ pilot projects across the Global South (Simonet et al., 2018). Fewer than half of the projects offered direct, conditional payments for forest conservation to land stewards (Wunder et al., 2020). Drawing on data from a sub-sample of these pilot projects, Wunder et al. (2020) report that conditional incentives were widely considered the most effective tool for promoting forest conservation, by both implementing organizations and land stewards. However, many implementing organizations did not expect to use conditional incentives, both because of the lack of secure long-term financial flows for climate change mitigation and because the pervasive insecure land tenure impedes effective contracting with land stewards.

Research has confirmed the importance of clear and secure land and forest tenure for the effectiveness of incentive-based instruments at improving natural resource management (Agrawal et al., 2014; Galik & Jagger, 2015; Larson et al., 2013; Robinson et al., 2014; Sunderlin et al., 2018). Lack of exclusion rights in particular can undermine the effectiveness of PES contracts (Clements et al., 2010), although that also depends on the structure of the PES program (e.g. see Jones, MacDonald, et al., 2020). For example, Rosales (2003) describes PES programs that formalized and recognized customary tenure in the Philippines. In fact, tenure security may effectively be the incentive offered for ecosystem conservation (e.g. in Ecuador as discussed by Buntaine et al., 2015 and Holland et al., 2017). Thus, the security of land tenure can both influence who participates and be influenced by participation in PES (Börner et al., 2017, 2011; Holland et al., 2014; Smith et al., 2017; Swallow & Meinzen-Dick, 2009). Some PES programs require that participants have land titles (Bremer et al., 2014; Jones, Etchart, et al., 2020). Even in those cases, participation in the program can lend legitimacy and increase the security of land tenure (e.g. in Costa Rica as discussed by Arriagada et al., 2009; Miranda et al., 2003). Jones, Etchart, et al. (2020) find that participation in a PES program reduced conflict over land under *de facto* communal tenure, but not in communities with *de facto* private land tenure in Ecuador. In China, Liu et al. (2018) also found that the effects

of participation on tenure depend on the initial tenure conditions as well as the institutional details of the program.

## The Wide Spectrum of Conditionality and Tenure Security

Given the multiple and critical roles of tenure in conditional incentives, interest in using PES for REDD+ has helped motivate interventions to address long-standing tenure insecurities, for example, through the “Terra Legal” program in Brazil (Duchelle et al., 2017) and the “One Map Policy” in Indonesia (Astuti & McGregor, 2015; Mulyani & Jepson, 2016; Resosudarmo et al., 2014; Sunderlin et al., 2018). The increased attention to tenure raises questions about the optimal sequencing, integration, and design of tenure interventions and conditional incentives. This depends in part on the specific forms of conditionality and tenure insecurity.

Conditionality is critical for securing service provision in PES systems (Engel et al., 2008). In PES designed to mimic market exchange of ecosystem services, conditionality means that rewards or benefits received by the ecosystem service (ES) provider are conditional on compliance or performance measures agreed in contracts between parties (van Noordwijk & Leimona, 2010). However, the degree and form of conditionality incorporated into PES programs vary widely (Hejnowicz et al., 2014). Conditionality can take the form of either incentives or rewards, delivered either by market-based instruments or by public programs (see Box 10.1). The conditions can be long term such as sustained provision of environmental services, medium term such as engaging or foregoing a particular resource use, or short term such as participation (Engel et al., 2008). Regardless, conditionality requires establishing systems for monitoring, enforcement, and sanctions (Newton et al., 2012). State actors play particularly important roles in enforcing conditionality for ES that are public goods (e.g. biodiversity, carbon sequestration) and in cases with strong incentives for free-riding. Figueroa et al. (2016) argue that the observed variation in conditionality reflects variation in socio-economic

**Box 10.1 Identifying Different Levels of Conditionality**

Van Noordwijk and Leimona (2010, pp. 6–9) identify different levels of conditionality:

- **Level 1** is based on actual service delivery and direct marketability of a commoditized environmental service, for example, carbon credits. This refers to direct market transactions between service providers and buyers.
- **Levels 2 and 3** operate in the context of compensation of opportunities foregone and are based on the achievement of an objectively measurable condition of the agricultural or forest landscape. This refers to financial compensation of opportunity costs (by private or public actors).
- **Level 4** emerges in the context of co-investments in the landscape and may include negotiated tenure, investment in public services, or land use planning conditional of ES maintenance. This level of conditionality is based on trust in local communities to enhance ES provision under flexible contracts in the presence of monitoring and sanctions. Benefits might not be directly linked with ES provision and financial opportunity costs might not be fully paid.

and political conditions, such as forest and land management practices, livelihood strategies of forest dwellers, social differentiation, migration, and the structure and processes of governance.

Based on their analysis of PES programs across the Global South, van Noordwijk and Leimona (2010) conclude that Level 1 conditionality is often not appropriate because enhancement of ES cannot be disentangled from development needs, especially in the context of unclear, overlapping, and contested rights to natural resource rights. They call for review of existing legal frameworks to identify and establish the appropriate level of conditionality. Likewise, Newton et al. (2012) suggest that *Bolsa Floresta* in Brazil would be more effective if its payment structure were adjusted to account for different opportunity costs and livelihood strategies. In Indonesia, Kerr et al. (2014) recommend that the conditionality framework for community forests, or *Hutan Kemasyarakatan*, should be based not only on the delivery of environmental service, but also on the maintenance of the ecosystem in a desirable state and development of institutional arrangements that further enhance ES service provision. The existing conditionality framework calls for eviction of stakeholders who do not abide by the contract terms, which is politically unrealistic.

Conditionality is fundamentally based on property rights, which determine who is eligible to receive an incentive, and therefore who benefits, who is excluded, and who is responsible and held accountable for meeting contract obligations. Absent or weak property rights can prevent resource stewards from participating in PES schemes and REDD+ initiatives (Blackman et al., 2017b; Wunder, 2013; Wunder et al., 2008). Recognition and distribution of property rights is not a straightforward process. First, even in situations where statutory rights are fully transferred from public ownership to individuals or collectives (e.g. land titles of Indigenous territories as described in Chap. 4), the government can place restrictions or conditions on the bundle of rights. For instance, pro-forest conditions linked to titling programs may include the obligation to forgo forest-clearing activities or maintaining a portion of land in forests (Bruce et al., 2010). Second, only a partial bundle of rights may be recognized among groups of resource users (e.g. via co-management agreements). Third, the State may grant rights to different resources in the same territory via concessions or licenses, for example, an extractive concession granted within the boundaries of an established protected area and/or Indigenous territory (Monterroso et al., 2019). To address this range of possibilities, Sunderlin et al. (2018) and Sunderlin, Larson, et al.

### **Box 10.2 Early Tenure Actions in the Context of Incentive-Based Initiatives**

Objectives of tenure interventions for conditional incentives

1. Clarify rights. Tenure arrangements determine who benefits; therefore, any initiative needs to define clearly who are the right-holders for rewards and incentives.
2. Establish responsibilities/accountabilities. Tenure arrangements determine responsibilities and accountabilities. This includes clarifying inter-sectoral and inter-ministerial tenure contestation at all scales.
3. Avoid resource rush.
4. Minimize negative effects of actions on local livelihoods and rights (resource use restrictions).
5. Strengthen the ability to exclude outsiders (provision of enforceable rights of exclusion).

Source: Buntaine et al. (2015), Sunderlin et al. (2018) and Sunderlin, Larson, et al., 2014)

(2014) argue that tenure must be considered holistically and from the beginning, for example, in readiness strategies that lay the groundwork for REDD+ (Box 10.2).

Clear and uncontested property rights allow ES suppliers to meet obligations and ES buyers to enforce contract commitments (Bruce et al., 2010; Naughton-Treves & Wendland, 2014; Resosudarmo et al., 2014; Robinson et al., 2014). Rights provide the authority to make land-use decisions and ensure protection against external claims. Both are often necessary to meet the conditions established for an incentive such as PES. Enforcement of existing rights requires sound monitoring and sanctioning rules as well as harmonized and clear implementation procedures in place in cases of infractions (Bruce et al., 2010; Naughton-Treves & Wendland, 2014; Robinson et al., 2014). Thus, broader legal and socio-political support including inter-sectorial coordination and collaboration are required to ensure the robustness of rights.

Tenure interventions should be tailored to the particular tenure challenge, that is, whether rights are unclear, insecure, or in conflict (Table 10.1). Addressing these tenure challenges is a highly contested and political process (Naughton-Treves & Wendland, 2014). While land titling is widely considered to provide the greatest tenure security, some interventions have recognized different sub-sets of the full bundle of rights (access, management, exclusion) to different sub-sets of the resources or services associated with land (e.g. wood, non-wood forest products, carbon rights, and water provision) (Bruce et al., 2010; Naughton-Treves & Wendland, 2014).

## Tenure Interventions in the Context of the Dedicated Grant Mechanism

The DGM was established in 2010 to support the full and effective participation of IPLC in REDD+. Critics of REDD+ have long pointed out that conditional incentives like PES are difficult—if not impossible—to implement where resource tenure is unclear and highly contested, as is broadly the case in countries in the Global South (Naughton-Treves & Wendland, 2014; Sunderlin, Ekaputri, et al., 2014; Sunderlin, Larson,

**Table 10.1** Characterization of tenure interventions in the context of conditional incentives

Tenure challenge	Type of intervention/ goals	Example of interventions
Rights unclear	Clarification of tenure rights or right-based approaches, as suggested by Agrawal et al. (2014), vary depending on whether they promote: <ol style="list-style-type: none"> <li>1. Creation of new rights</li> <li>2. Modifying the type of right</li> <li>3. Reallocating resource rights to different right holder</li> </ol>	<ul style="list-style-type: none"> <li>• Land titling</li> <li>• Demarcation and mapping of village/land/forests boundaries</li> <li>• Documentation and registration of rights in public registries (e.g. cadaster)</li> <li>• Review of existing overlapping rights (and claims) through regularization/formalization</li> <li>• Reforms in legislations to recognize/ reallocate/clarify/modify rights</li> <li>• Establishment of protected areas (or setting aside protection areas) to modify land uses</li> <li>• Social forestry schemes that recognize community forest management rights</li> </ul>
Rights insecure	Interventions to strengthen and enforce the robustness and guarantee of rights	<ul style="list-style-type: none"> <li>• Enforcement of exclusion rights through monitoring and sanctioning rules</li> <li>• Legal and socio-political support of resource rights</li> <li>• Harmonize or clarify procedures and rules</li> <li>• Review implementation processes (identify overlapping mandates)— inter-sectorial coordination and collaboration</li> </ul>
Rights in conflict	Mechanisms that enforce and protect the exercise of rights in conflict situations	<ul style="list-style-type: none"> <li>• Conflict management and conflict resolution mechanisms</li> <li>• Harmonization or clarification of procedures and rules</li> <li>• Grievance mechanisms (including compensation)</li> <li>• Review overlapping mandates across government institutions</li> <li>• Enforcement of monitoring and sanctioning rules</li> </ul>

Sources: Agrawal et al. (2014), Blackman et al. (2017b), Blackman and Veit (2018), Bruce et al. (2010), Buntaine et al. (2015), Holland et al. (2014), Larson et al. (2013), Naughton-Treves and Wendland (2014), Robinson et al. (2017) and Smith et al. (2017)



et al., 2014). The tropical forest regions of critical importance for REDD+ have complex and overlapping tenure regimes, where often what is legally or formally declared in terms of tenure does not match with the reality of tenure as defined or recognized among communities. IPLC are estimated to hold tenure rights to as much as 65% of forest in developing countries, but only 18% of this land is formally recognized either as owned or designated for their use (RRI, 2015). The vast majority of forest lands are officially owned by governments. These overlapping tenure systems affect not only communities and governments, but also private sector investors and owners (Sunderlin et al., 2014).

In addition to being a barrier to conditional payment schemes, overlapping and insecure tenure has been identified in national REDD+ readiness processes as a key driver of deforestation and ecosystem degradation (Sunderlin and Larson, et al., 2014). Effectively, tenure insecurity makes it harder to address the business-as-usual drivers of deforestation. Additionally, given the substantial amount of funding expected for REDD+ and for carbon credits more generally, there have been concerns that lack of clear tenure would encourage a type of resource rush or “land grab” to make carbon deals and capture REDD+ funding, leading to dispossession of traditional and customary landholders. Limiting participation to those with formal land titles could also bake in historical inequalities and exclude IPLC (Broegaard et al., 2017; Chomba et al., 2016; Johnson et al., 2018; Samndong & Vatn, 2018).

Concerns over these risks mobilized a movement for “no rights no REDD+” (Howell, 2014). Promoted on the ground by Indigenous and traditional peoples (Myers et al., 2017, 2018), this movement called for the adoption of specific measures that favored institutional changes through tenure clarification (Duchelle et al., 2018) and other types of rights-based approaches (Agrawal et al., 2014). As a result of the attention to tenure in both the scientific literature and popular movements, substantial funding for REDD+ readiness has been allocated to tenure interventions. This includes the DGM, which is supporting national programs to clarify communal and customary land tenure in order to establish the conditions for collective conditional incentives for IPLC.

Among the 13 countries targeted by the DGM, Peru and Indonesia have been subject to the most research, which we review for insight into the multiple roles of tenure interventions in REDD+ (Blackman et al.,

2017a; Blackman & Veit, 2018; Duchelle et al., 2017; Resosudarmo et al., 2014; Sunderlin et al., 2018). Specifically, we characterize the tenure interventions by identifying the goals of the proposed reforms, the tenure regimes targeted, the content of the proposed reforms, and the stakeholders involved. In this context, we identify two distinct roles for tenure, corresponding to two versions of conditionality.

Over the past decade, the DGM has supported a wide diversity of actions to facilitate incentive-based REDD+, notably including many tenure interventions as summarized in Table 10.2 for Peru and Indonesia. The DGM explicitly uses REDD+ to leverage interventions to secure land rights, thus helping to avoid further forest conversion and conflicts over incentives (DGM, 2019, p. 25). In both Indonesia and Peru, this includes formal recognition of the customary rights of Indigenous People. Consistent with the general belief and limited scientific evidence that Indigenous People conserve forests that they own (Nepstad et al., 2006; Nelson & Chomitz, 2011), both of these interventions embedded conditionality into the tenure instruments themselves, conditioning tenure on forest stewardship. Thus, recognition of tenure both enabled and functioned as the conditional incentive for forest conservation.

In the Peruvian Amazon, where large forest areas are held by Indigenous Peoples, titling has been promoted as a critical enabling condition for national REDD+ initiatives (Blackman & Veit, 2018; Evans et al., 2014; Robinson et al., 2017). While titling of indigenous lands started in the late 1970s, it stalled for decades due to lack of political support, changes in the institutional framework, and cumbersome procedures. In 2014, during COP 21, international supporters called for action to overcome challenges including lack of financial support to complete the regularization of communities in target areas (Monterroso et al., 2017). Since 2015, international funding has flowed into multiple environmental projects that also support the recognition, demarcation, and titling of the communal land holdings of native communities (Monterroso & Larson, 2018). One of these projects was the Saweto DGM, which was allocated USD5.5 million under the Forest Investment Program (administered by the World Bank) and supported the recognition of 310 native communities and the demarcation and titling of almost 1 million hectares in the Amazon (Sunderlin et al., 2018).

**Table 10.2** Tenure interventions in the context of DGM schemes in Peru and Indonesia

Country	Tenure intervention and proposed actions	Changes in the bundle of rights	Level of conditionality
Peru	<p>DGM Saweto focused on clarifying and securing Indigenous communities' tenure rights through:</p> <ul style="list-style-type: none"> <li>• Legal recognition of native communities</li> <li>• Demarcation of communal villages and forests and documentation of existing rights</li> <li>• Granting of collective property titles in agricultural lands</li> <li>• Granting of usufruct contracts in forest lands</li> <li>• Promotion of community forest management</li> </ul>	<ul style="list-style-type: none"> <li>• Communal land titles recognize decision-making rights over agricultural land</li> <li>• Usufruct rights to community forests are granted in perpetuity, but management of those areas must comply with other regulatory procedures (e.g. submission of management plans, logging permits)</li> <li>• State retains alienation rights and rights to subsoil (minerals and oil)</li> </ul>	<p><b>Level 4. Communal Land Titling.</b> Tenure requires maintenance of ES</p>

*(continued)*

Table 10.2 (continued)

Country	Tenure intervention and proposed actions	Changes in the bundle of rights	Level of conditionality
Indonesia	<p>Formalization of customary rights vary depending whether they are implemented in:</p> <p>Private Forests</p> <ul style="list-style-type: none"> <li>Collective rights to lands and forests within ancestral territories of customary peoples (<i>masyarakat hukum adat</i>).</li> </ul> <p>State Forests</p> <ul style="list-style-type: none"> <li>Community forest licenses (IUP-HKM<sup>a</sup>) granted local communities or groups adjacent to state forests classified as both production and protection forests.</li> <li>HTR<sup>a</sup> permits granted to communities, associations, or cooperatives to establish forest plantations in production zones of state forests.</li> </ul>	<ul style="list-style-type: none"> <li>Rights recognized include use and management rights of timber (in production forests) and NTFPs (in production and protection forests)</li> <li>Forest user groups are required to form organizations, although permits are granted at the individual (family) level.</li> <li>Duration of rights is up to 35 years, after a 5-year probation period, but state retains alienation rights and rights to subsoil (minerals and oil).</li> </ul>	<p><b>Level 2 and 3. HKM<sup>a</sup> and HTR<sup>a</sup></b> allow for payments and compensation for maintaining conditions of forest landscape.</p> <p><b>Level 4.</b> Customary forests, Tenure conditional of ES maintenance, reduction of land use conflict and avoided collateral damage to ES provision</p>

Sources: DGM (2019), Monterroso et al. (2017), Siscawati et al. (2017), Monterroso and Larson (2018) and Sunderlin et al. (2018)

<sup>a</sup>HKM *Hutan Kemasyarakatan* community forests; HTR *Hutan Tanaman Rakyat* community forest plantations

The low-cost approach to titling promoted by Saweto DGM relies on the participation of Indigenous communities along with their regional and national federations, subnational governments, and NGOs to

achieve a more efficient implementation process with greater buy-in from stakeholders. Involving stakeholders during mapping and demarcation activities can reduce conflicts and help avoid negative incentives that favor forest conversion while improving livelihoods (Blackman et al., 2017b). By 2018, DGM Saweto had reported the legal recognition of 133 new communities—a pre-condition of titling—in around 400,000 hectares (MDE Saweto Peru, 2021). More than 200 communities are expected to participate in new titling processes over the next few years with the potential to formalize up to one million hectares in key REDD+ areas. This could become a model for other countries in the Amazon Basin where legal recognition and titling of Indigenous communities has been promoted both to promote participation of those communities and to increase the effectiveness of REDD+ (Loaiza et al., 2016; Schroeder & González, 2019).

The DGM in Indonesia also aims at improving clarity and security of rights of Indigenous Peoples by supporting their recognition under Indonesia Village Law, for example, by mapping forests and village boundaries (DGM, 2022). Rights to land and forests within their ancestral territories can be recognized as “customary titled forest” (*masyarakat hukum adat*). These reforms started after the constitutional reforms in 2012 (Constitutional Court Ruling 35/PUU-X/2012). However, implementation has been slow due to lack of clear procedures and coordination of responsible government institutions (Myers et al., 2017).

The DGM in Indonesia has made more progress with social forestry schemes in state forests, which represent around 70% of Indonesia’s territory. These recognize local communities’ management rights and thus position them to participate in REDD+ or other PES, which could in turn both increase the value of natural resources and enhance their ability to enforce property rights (Engel & Palmer, 2008; Resosudarmo et al., 2014; Suyantoi, 2007). The DGM facilitates access to social forestry permits for both community forests (*Hutan Kemasyarakatan HKM*) and community plantations (*Hutan Tanaman Rakyat HTR*) (Krishna et al., 2017; Resosudarmo et al., 2014). HKM permits are

granted to organized groups around state forests mainly for use and extraction rights, while HTR permits grant rights to state forest lands for reforestation activities. Implementation of these social forestry schemes started after the decentralization of the forest sector and reforms to the National Forest Law (Forest Law No. 41, 1999) (Siscawati et al., 2017; Banjade et al., 2016).

According to Kerr et al. (2014), these types of social forestry schemes use clarification of rights as a type of reward for environmental services. In the case of HKM, permits are granted initially for a period of 5 years, which can be extended to 25 or 35 years if communities have met their obligations. For example, organized groups of farmers may be granted tenure rights over state land in exchange for protecting forest and watershed services (Catacutan, 2011). The rights granted under HTR differ in that they allow for planting trees such as damar or rubber, thus providing an important livelihood incentive and improving local incomes. Implementation of these social forestry schemes is advancing much faster than the recognition of customary lands (Myers et al., 2017). The explicit goals addressing livelihood concerns, as well as conditional tenure rights in social forestry schemes, seem to provide clear incentives to secure key ecosystem services at least in the medium term (Suyantoi, 2007).

Thus, the DGM tenure interventions introduce conditionality both through the tenure instruments themselves, for example, restrictions on alienation rights, such as the prohibition of subdividing land or selling it for some period (cf., Bruce et al., 2010), as in the DGM Saweto in Peru, and by making the extension of social forestry permits conditional on ES provision, as in the HKM and HTR programs for communities near state forests in Indonesia. The DGM also illustrates one of the key challenges of enforcing pro-forest conditionalities: inconsistent state policies and weak monitoring (Börner et al., 2017). Kerr et al. (2014) argue that less strict conditionality is often imposed when the conditional benefits are not cash payments, such as land tenure.

## Successes and Pitfalls with Formalization of Tenure Rights in the Context of Conditional Incentives

The rapid uptake of PES and then REDD+ in the Global South has provided new opportunities for securing local tenure rights (Duchelle et al., 2017; Kerr et al., 2014; Larson et al., 2013; Sunderlin et al., 2018). There is important variation in both the type of interventions and the context in which they are implemented. Readiness processes have encouraged reforms in countries to clarify, secure, and guarantee tenure rights in target areas; however, the scale of projects still seems insufficient given the long-standing and large-scale needs. In Peru, DGM implementation has been matched with similar interventions that have promoted coordination and collaboration with opportunities for scaling up interventions in the medium term. However, as pointed out by others, while titling is broadly promoted as a way to clarify tenure, it does not entirely guarantee tenure security or conservation outcomes (Engel & Palmer, 2008; Holland et al., 2014; Robinson et al., 2014). Although there are some initial assessments analyzing the impacts of titling both on forest cover and on livelihood outcomes, clearly further analysis is needed (Blackman et al., 2017b; Cruz-Burga et al., 2019). Land titling can affect conservation outcomes through multiple channels, including potentially the ability to participate in PES programs.

Indonesian social forestry schemes are an interesting example of how enhancement and recognition of tenure rights to resources can raise the value of natural resources, with benefits for both local livelihoods and forest conservation. Social forestry schemes combining different types of environmental service reward mechanisms, including the recognition of tenure rights (Resosudarmo et al., 2014; Suyantoi, 2007), demonstrate how to incorporate non-cash benefits into conditionality where there are weak tenure rights (Börner et al., 2017). Both the Peru and Indonesia cases also show the importance of enforcement of exclusion rights to ensure outcomes and meet conditionality. Having the right institutional and incentive mechanisms in place and ensuring the political will and support of tenure reforms and ability of right-holders to enforce rules is key (Naughton-Treves & Wendland, 2014; Robinson et al., 2014).

Finally, both the experience of the DGM and the scientific literature show the importance of broad participation and engagement of stakeholders including local communities as well as land and forest managers (Duchelle et al., 2018; Schroeder & González, 2019). The DGM is particularly noteworthy in that it specifically encourages participation of Indigenous Peoples and local communities in REDD+ processes. This participation has perhaps encouraged the DGM to align tenure interventions with incentive-based mechanisms and thus enhance livelihoods while ensuring provision of key ecosystem services. While the DGM provides instructive examples, we recall the lessons from the literature on PES, which clearly show that the relationship between conditional incentives and tenure security is context specific and depends on the institutional details of both the existing tenure system and the conditional incentives being introduced.

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