

FORMA and fCPR

Accelerating a Performance-Based Payment System for REDD+

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Abstract

Reducing carbon emissions from forest clearing and degradation has become an important part of the international climate agenda. To this end, a proposed payment mechanism called REDD+ would transfer funding to tropical forest countries to take action: to reduce emissions from deforestation and land degradation (REDD) and to engage in sustainable forest management and conservation and to enhance forest carbon stocks (the + part).

But forests are more complex than power plants, so it's been more difficult to design a performance finance scheme based on quantified reductions in emissions. One of the biggest challenges is to design a simple,

reliable system to monitor, report, and verify changes in carbon stocks calibrated in terms of CO₂ equivalent.

The Center for Global Development has developed a satellite monitoring tool, called Forest Monitoring for Action, or FORMA, and a simple performance rating system, called Forest Conservation Performance Rating (fCPR), that could potentially be used to provide a performance scorecard and an interim performance-based payments scheme until robust national monitoring, reporting, and verification schemes with “full carbon accounting” are in place. This paper briefly summarizes how the FORMA tool and the fCPR rating system could work.

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Accelerating a Performance-Based, Easily Measurable Payment System for REDD+

Reducing carbon emissions from forest clearing and degradation has become an important part of the international climate agenda. To this end, a proposed payment mechanism called REDD+ would transfer funding to tropical forest countries to take action: to reduce emissions from deforestation and land degradation (REDD) and to engage in sustainable forest management and conservation and to enhance forest carbon stocks (the + part). Once it's fully developed, REDD+ is intended to be a performance finance mechanism that would provide payments to forest countries to reduce deforestation with payments based on the tons of carbon emissions reduced or avoided by not cutting forests.

In general, climate mitigation payment schemes provide funding based on performance, measured as reductions in tons of greenhouse gas (GHG) emissions. International carbon markets and offset schemes allow funders to channel resources into the most efficient sources of emission reduction, that is, those with the lowest cost per ton of avoided emissions. Because GHG emissions from forests account for about 15% of the total, the climate community is interested to extend carbon markets to forests.

But forests are more complex than power plants, so it's been more difficult to design a performance finance scheme based on quantified reductions in emissions. One of the biggest challenges is to design a simple, reliable system to monitor, report and verify (MRV) changes in carbon stocks calibrated in terms of CO₂ equivalent. Most tropical forest countries are still developing the capability to gather and analyze data and to figure out "reference levels," or baselines. Satellite and other systems for simple, relatively frequent and robust monitoring are still being tested. As a result, even the most sophisticated tropical forest countries lack the capability to demonstrate a mature full national MRV system for forest carbon. Thus, payments to support reduced deforestation have for the most part been limited to "readiness" inputs that support capacity development and design of policy frameworks (see Table 1). Large scale performance based payments finance programs are not yet ready. Given the technical obstacles to moving ahead, frustration has begun to set in among forest countries, funder countries and private financiers.

An Interim Approach

The Center for Global Development has developed a satellite monitoring tool, called **Forest Monitoring for Action**, or **FORMA**,¹ and a simple performance rating system, called **Forest Conservation Performance Rating (FCPR)**,² that could potentially be used to

¹ See [CGD's website](#) and [Forest Monitoring for Action--Rapid Identification of Pan-tropical Deforestation Using Moderate-Resolution Remotely Sensed Data](#) - Working Paper 192

² See CGD working paper **From REDD to Green: A Global Incentive System to Stop Tropical Forest Clearing** (December 2011) and a policy paper, **Forest Conservation Performance Rating for the Pan-Tropics** (draft, January 2012)

provide a performance scorecard and an interim performance-based payments scheme until robust national MRV schemes with “full carbon accounting” are in place. These tools could serve as a “quick and dirty” proxy while the difficult work to develop and fine-tune the final MRV system goes on. Together, the two tools could provide an analytical approach that is global, low cost and consistent across tropical forest countries. This note briefly summarizes how the **FORMA** tool and the **fCPR** rating system could work.

The Monitoring Tool: Forest Monitoring for Action – FORMA

A number of remote sensing tools – LIDAR, Landsat, SPOT and other satellite imagery tools – are being explored to monitor tropical forest clearing. However, there is still no simple, timely and globally consistent method in place. The **FORMA** tool developed by CGD uses free satellite data that is updated every 1 – 2 days based on the Moderate Resolution Imaging Spectrometer (MODIS), which operates on NASA’s Terra and Aqua (EOS PM) satellite platforms. The **FORMA** tool is automated and operationally useful, with monthly (soon to be twice monthly) update capability. It provides estimates for 1 km² parcels, and in future will provide data down to 500 m² parcels.

The Rating Tool: Forest Conservation Performance Rating (fCPR)

In simple terms, using **FORMA**, the Forest Conservation Performance Rating (**fCPR**) assigns color-coded performance ratings for all tropical forest countries against three benchmarks, explained below. The ratings are released quarterly and are publicly available on the CGD website.

The **fCPR** can serve two purposes: it can be used as a global “scorecard” to provide evidence on a quarterly basis as to how a country or even a state or province is performing against benchmarks. Evidence from other environmental scorecard systems shows that no country or entity wants to be seen as a bad performer, so they are motivated to try to improve performance. The **fCPR** can also be used as a prototype incentive system that adopts the principles of cash-on-delivery (COD) aid³ to reward independently-monitored performance without formal contracts (see below). This can be particularly useful as recent analysis by CGD indicates that macroeconomic factors, and not just forest management, are important in determining forest clearing rates. This highlights the importance of incorporating economic dynamics into financial compensation arrangements for forest conservation.⁴

³See Nancy Birdsall and William Savedoff, [Cash on Delivery: a New Approach to Foreign Aid](#) (2010).

⁴ See [David Wheeler](#), Dan Hammer, Robin Kraft, Susmita Dasgupta, and Brian Blankespoor, *Economic Dynamics and Forest Clearing: A Spatial Econometric Analysis for Indonesia* - Working Paper 280

The **ICPR** Benchmarks

Forest Transition. The first benchmark measures a country's progress against its normal "forest transition." The notion of forest transition is based on the observation that a country's rate of deforestation declines as its income rises, until eventually the rate of deforestation is zero. The rate at which deforestation declines has been called the country's "forest transition curve." The **ICPR** authors calculate that the per capita income level at which forest clearing ceases is \$15,000 (in purchasing power parity terms). Using the average forest clearing during the previous two years as a benchmark, a "forest transition" line can be drawn that will reflect a target path that begins at the benchmark and declines toward zero clearing at an income of \$15,000. So the first color code relates to a country's performance relative to its "business as usual" base case.⁵ If a country's rate of deforestation declines faster than anticipated (below the "forest transition curve"), it gets a yellow dot.

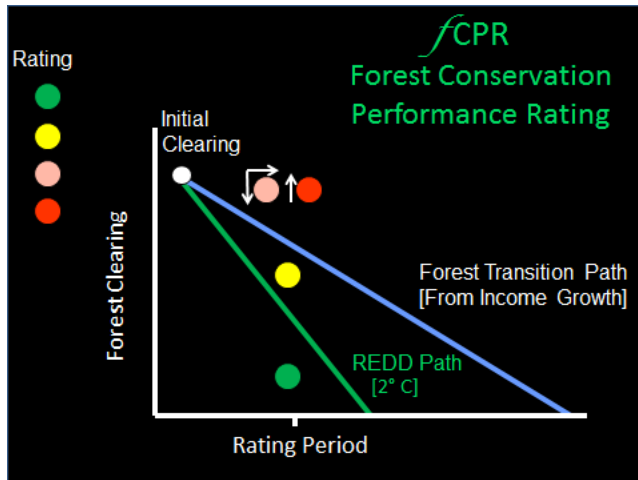
The REDD+ Goal. The idea of REDD+ reflects the global community's recognition that we are unlikely to avoid a climate catastrophe unless carbon emissions plummet in the near future. But this may not happen under "business as usual" – the normal forest transition described above. The **ICPR** sets an ambitious goal for zero forest clearing by 2025.⁶ Countries would receive a better rating – a green dot -- if the rate of decline in forest clearing were not only better than their normal forest transition line but at a rate that would lead to the REDD+ goal of zero clearing by 2025. The chart below illustrates.

Short-run Progress. The third benchmark would recognize a one-time decrease in clearing from one period to the next, even if countries are above their forest transition curve and the REDD+ goal line. The idea is to provide encouragement to countries whose rates of forest clearing may be above the first two benchmarks. It is a one-time recognition to avoid the perverse incentive to increase and then decrease forest clearing over and over. In this case a country above the two benchmark lines but whose performance in the period is better than last would get a pink dot.

Countries above the two benchmarks and with worsening performance would get a red dot. The chart below illustrates the simple four color rating scheme.

⁵ The authors of the **ICPR** system propose a benchmark based on the past two years' performance. Given that MODIS data is available for the last 10 years, an alternative would be to construct a benchmark based on the average of the 10 years.

⁶ The authors note that no consensus target year for zero deforestation has emerged from the international climate negotiations, although drafts circulated at Cancun apparently included references to a target date of 2030 (Gray, Louise. 2010. Cancun climate conference: Fears over a global deal on forests. *The Telegraph*, Dec. 7., 2010)

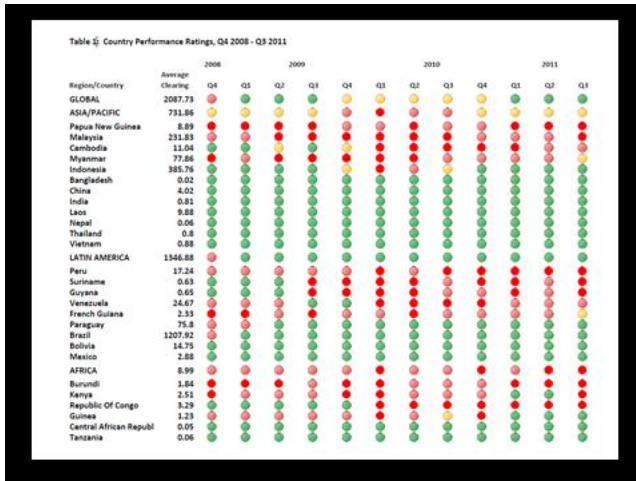


Some Useful Terms

REDD+:	Reduced (Greenhouse Gas) Emissions from Deforestation and Land Degradation
GHGs:	Greenhouse gases
MRV:	Monitoring, Reporting and Verification systems to track emissions reductions
FORMA:	Forest Monitoring for Action, a satellite tool to monitor forest clearing
fCPR:	Forest Conservation Performance Rating, a simple color-coded scorecard of forest clearing
COD:	Cash-on-Delivery, a system to transfer resources based on results rather than inputs
Forest transition:	The notion that deforestation declines as country incomes rise

Using fCPR for a Simple Performance-Based Payment Scheme. In addition to the reputational scorecard outlined above, the fCPR rating can be used as a prototype incentive system that adopts the principles of cash-on-delivery (COD) aid to reward independently-monitored performance without formal contracts. The fCPR would provide unconditional cash transfers based on measured performance using the color coded dots explained above. The payments and the reputational incentives could help to demystify performance based payments: the performance is the change in forest clearing, as an interim proxy measure while the full MRV system measuring changes in tons of carbon emissions at the country level is developed. As an interim scheme, fCPR can accelerate reductions in forest clearing by providing a mechanism to reward results, and not just inputs, based on a simple, transparent measure of forest clearing.

Countries would receive a payment if their performance in a period was below the Forest Transition Path (yellow). They would receive a second, or larger, payment if the rate of decline in forest clearing were not only better than their normal forest transition line but at a rate that would lead to the REDD+ goal of zero clearing by 2025 (green). The third benchmark (pink) would allow for a one-time payment for a decrease in clearing from one period to the next. Here is an example scorecard:



Setting the Price

As an interim mechanism on the path to a full compliance carbon market, the **ICPR** payment scheme would reward forest conservation by paying the equivalent of a “rental” value on each ton of CO₂ that has not been emitted into the atmosphere, determining the rental per hectare of tropical forest that is conserved rather than cleared.⁷ The authors believe that the price must be set and remain stable for a substantial period of time, that the price must be set competitively to offer credible compensation for conservation, and that it should not be higher than the marginal cost of CO₂ reduction in the energy sector, the price at which energy producers find it worthwhile to reduce CO₂ emissions.

As an illustration, the authors propose a price of \$25/ton CO₂. This price takes into account the CO₂ price equivalent of the conversion opportunity cost of tropical forest land—anything lower may be insufficient to induce conservation in many active deforestation areas. Using a price of \$25 per ton annually and a standard of 500 tons of CO₂ sequestered per hectare would yield an annual payment per tropical forest hectare conserved (below the transition line) of \$681. Continuing the illustration, it is suggested that the unit payment for performance below the REDD line be set at twice the transition level, or \$1,362/hectare, given the need to reduce emissions quickly. The single-period payment could be set at four

⁷ Chomitz, Kenneth, Piet Buys, Giacomo De Luca, and Timothy Thomas. 2006. **At loggerheads? Agricultural expansion, poverty reduction and environment in the tropical forests.** Policy Research Report. World Bank

times the REDD payment, or \$5,448/hectare, with the aim of promoting course reversal for rapid-clearing countries in the short term.

The final REDD performance finance system anticipates payments being made bi-annually. If **iCPR** were adopted as an interim approach, it might be useful to provide payments on a quarterly basis to create more frequent opportunities for learning.

Conclusion

The **iCPR** scheme, using the **FORMA** monitoring tool, can provide an interim analytical approach to pilot performance-based payments to reduce forest clearing. As such, it can complement the capacity development and policy design approaches currently underway. Development of a compliance carbon market is currently taking place in three phases, with the first two phases providing funding to develop capacity, policies and strategies. Implementation of the performance-based carbon market would take place in the third phase. The table below shows how **iCPR** and **FORMA** can complement the current approaches, bringing forward the potential for performance-based payments at the same time that essential capacity development measures continue to receive support. (**iCPR** and **FORMA** additions to the current system are in bold.)

TABLE 1	Phase 1	Phase 2	Phase 3
Scope	RED/REDD/REDD+	REDD/REDD+	REDD+
Crediting scale	Subnational	Both subnational and national	Sub-national or national approach
Performance indicators	Strategy adopted Legislative and policy assessment completed	Policies enacted Measures enforced	Quantified forest carbon changes (tCO ₂ e), compared to a reference level
Funding	Consultations conducted Institutions in place Initial support for national strategy development and readiness activities (e.g., FCPF, UN-REDD, bilateral initiatives) Capacity development	iCPR: change in forest cover compared to baseline Funding from bilateral and multilateral sources and might also be via global fund or COP-mandated funds. Capacity development and basic monitoring capacities; FORMA data on changes in forest cover	Primarily linked to compliance carbon markets, but might also be via global fund to reflect non-carbon forest benefits Advanced monitoring capacities and setting reference levels

Source: adapted from Meridian Institute, REDD+ Institutional Options Assessment, 2009 and CIFOR, Realising REDD+: National strategy and policy options, 2009

Conclusion. The **fCPR** and **FORMA** tools offer the possibility of an interim performance-based mechanism to transfer payments to tropical forest developing countries to reduce forest clearing before they are ready to participate in (an eventual) full-fledged compliance carbon market. It can provide a low cost, global approach that is consistent across all tropical forest countries. It can test approaches to designing reference levels, offer rapid response payments to reward countries for actual results – reducing deforestation – and provide a transparent, publicly available scorecard to motivate action. The **fCPR** can provide a global measurement and reward system to complement the bottom-up approaches to combat drivers of deforestation. In this way **fCPR** can help to accelerate the goal of zero forest clearing in time to avoid catastrophic climate change.