

Verifying Mitigation Efforts in a New Climate Agreement

A new global climate agreement will be most effective if parties are confident that it enables them to assess how well others are fulfilling their obligations. This can be achieved through a rigorous system of measurement, reporting, and verification. Key elements should include: annual emission inventories for all major greenhouse gas-emitting countries; national verification of mitigation commitments and actions in accordance with international guidelines; regular reports from parties detailing their implementation and verification of their commitments and actions; and expert review of parties' inventories and implementation reports. Beyond verification, a new agreement should provide for a clear determination of whether a party is in compliance with its commitments. The compliance approach should be largely facilitative, rather than punitive, geared toward helping to identify and overcome obstacles to implementation.

Introduction

A central issue in the current round of international climate change negotiations is how countries' efforts under a new agreement are to be verified. The 2007 Bali Action Plan, which frames the negotiations, calls for the mitigation commitments and actions of both developed and developing countries to be "measurable, reportable and verifiable" (MRV). (Support for developing country efforts also is to be "measurable, reportable and verifiable," but is beyond the scope of this policy brief.)

Verification is a tool used in many international agreements as a means of enabling parties to assess one another's performance. Parties are likely to have greater confidence in a regime, and be willing to take on stronger commitments, if an effective, transparent system of reporting and verification gives them reliable information about how well others are meeting their obligations. Verification also can promote implementation by identifying areas where technical or financial assistance can help parties improve their performance.

Generally, "verification" refers to the process of independently checking the accuracy of information

reported by parties or the reliability of the procedures used to generate that information. As such, verification is typically a technical assessment, rather than a legal judgment as to whether a country is in compliance with an agreement. Although the Bali Action Plan does not speak to the question of compliance, many parties have raised the issue and proposed ways to determine and address cases of non-compliance under a new agreement.

The treatment of verification and compliance in any new climate agreement will depend heavily on the specific shape of the agreement. While there remain fundamental differences on the nature of a post-2012 framework, the broad outlines may be emerging: developed countries undertake some form of absolute economy-wide emission reduction targets, and possibly supporting or supplemental measures; developing countries undertake a range of mitigation actions appropriate to their circumstances, some to be implemented unilaterally, others with support through the carbon market and/or public finance.

A central challenge with such a framework is establishing a verification system rigorous enough to maintain parties'

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confidence, yet flexible enough to accommodate a diversity of commitment types. As a practical and political matter, it seems advisable that the verification and compliance provisions of a new agreement build where possible on existing guidelines and practices under the U.N. Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. This brief begins by describing and evaluating existing requirements under the Convention and the Protocol. It then outlines recommendations for building on these mechanisms to establish a comprehensive approach to verification and compliance in a post-2012 climate framework.

Verification and Compliance under the UNFCCC and Kyoto Protocol

The UNFCCC requires all parties to submit national communications and national emission inventories, but the requirements for Annex I parties (developed countries and economies in transition) and non-Annex I parties (developing countries) differ substantially. Reporting requirements for Annex I countries were expanded and strengthened under the Kyoto Protocol to enable compliance determinations. Both agreements also provide for the international review of information submitted by Annex I parties.

The Convention does not contain a compliance mechanism. (While the Convention provides for the development of a “Multilateral Consultative Process” to address issues regarding implementation of commitments, none has been established.) In contrast, the Kyoto Protocol establishes a Compliance Committee, with both a Facilitative Branch and an Enforcement Branch, and automatic consequences for Annex I parties’ non-compliance with reporting requirements and emission targets.

Greenhouse Gas Inventories

Article 12 of the Convention requires both Annex I and non-Annex I parties to prepare and submit national greenhouse gas (GHG) inventories. However, the frequency of their submissions, and the information required, are very different. The Kyoto Protocol expands inventory requirements for Annex I parties, and makes compliance with these and certain other reporting requirements a condition for participating in emissions trading and the other flexible mechanisms.

Annex I

For Annex I parties, the inventory requirements are intended to enable evaluation of parties’ progress in reducing GHG emissions and, under the Protocol, to enable determination of compliance with the emissions targets. Annex I parties are required to submit detailed annual inventories covering the six major GHGs, prepared using methodologies established by the Intergovernmental Panel on Climate Change (IPCC) and reported according to agreed guidelines.

Under Kyoto, each Annex I party is also required to establish and maintain a “national system” for inventory preparation. While the structure of these national systems varies, each is required to meet specific functional requirements for inventory planning, preparation, management and archiving. Parties must report on the structure and practices of their national systems in their inventory reports.

Both Annex I inventories and national systems are subject to an annual review by expert teams assembled by the UNFCCC secretariat. These reviews assess the conformity of the methods and data sources used in the preparation of the inventory with the IPCC methods. At least every five years, reviews are conducted in-country to more thoroughly examine documentation and activity data and to assess a party’s institutional, procedural and archiving arrangements.

In the case of Kyoto parties, all reports by expert review teams are forwarded to the Enforcement Branch of the Compliance Committee. If the Enforcement Branch determines that a party’s national system or inventory is deficient, it must automatically suspend that party’s ability to participate in emissions trading and the other Kyoto mechanisms.

The strong focus on Annex I inventories in the international process over the past several years, and the potential consequences for non-compliance, have helped ensure inventories that are widely regarded as highly reliable. The link to mechanism eligibility provides a strong incentive for compliance with reporting requirements, while the link between the review process and the Compliance Committee ensures that any deficiencies identified will be addressed.

Non-Annex I

For non-Annex I parties, inventories are not reported separately, but as part of their national communications. Beyond an initial communication required by the Convention, contingent on financial support, the frequency of reporting is determined by the Conference of the Parties (COP). To date, 134 of the 150 non-Annex I parties have submitted their initial national communications, two (the Republic of Korea and Uruguay) have submitted their second, and one (Mexico) has submitted its third.

The guidelines for non-Annex I inventories are weaker than those for Annex I countries in several respects: the use of IPCC methodologies is not required; data is required for only a single year, making it difficult to evaluate emission trends; reporting is mandatory for only the three main GHGs (carbon dioxide, methane and nitrous oxide). In addition, neither the inventories nor the national communications of non-Annex I parties are subject to review. Some non-Annex I parties have gone beyond the reporting requirements, for instance by reporting data for multiple years or documenting their use of IPCC guidelines. On the whole, however, the absence of rigorous reporting requirements significantly compromises the quality of non-Annex I inventories.

Another major barrier is a lack of capacity in many countries. Although non-Annex I parties receive financial assistance for the full costs of preparing their communications, the funding is tied to the timing of submissions and thus highly episodic, making it difficult for parties to maintain ongoing inventory capacity. The ability of non-Annex I parties to prepare higher quality inventories is very much dependent on the availability of adequate support to establish the capacity to prepare ongoing inventories.

In their current form, non-Annex I inventories do not provide a reliable basis for verifying national emissions or for evaluating emission trends for non-Annex I parties as a whole.

Greenhouse Gas Mitigation Measures

All parties are required to implement measures to mitigate GHG emissions and to provide a general description of these measures in their national communications. As with national

inventories, reporting requirements differ substantially for Annex I and non-Annex I parties. Only Annex I parties are subject to review and, in the case of the Kyoto Protocol, compliance procedures.

Annex I

Annex I parties are required to provide detailed information on the policies and measures they are implementing to meet their Convention obligations and their Kyoto targets. Parties' reports describe: national policy contexts; specific policies and measures contributing to GHG mitigation by sector and by gas; their implementation status; and, where feasible, quantitative estimates of their effect to date on emissions. In addition, Annex I parties are required to report estimates of their measures' projected impact on future emissions and removals.

However, specific standards or metrics for measuring and reporting policies and measures have not been established. Further, the reporting guidelines do not require documentation to substantiate parties' estimates of their measures' GHG effects. Consequently, the type and level of information provided varies widely across parties.

Unlike inventory reviews, which employ rigorous standards and procedures, the review of national communications under both the Convention and the Protocol is largely facilitative: expert teams meet with national experts and stakeholders to better understand, and provide feedback on, the information reported in the national communication. In the case of a Kyoto party, questions of implementation raised by the expert team are referred to the Facilitative Branch of the Compliance Committee, which can advise a party on ways to improve its implementation but has no enforcement powers.

The lack of specificity in reporting guidelines does not allow a full assessment or verification of the effectiveness of measures reported by Annex I parties, or a comparison of efforts across countries. In the case of Kyoto parties, these shortcomings are not necessarily a problem, as a party's compliance is assessed not on the basis of its implementation of specific mitigation measures, but rather on attainment of its target (see below).

Non-Annex I

As with national inventories, the reporting guidelines for non-Annex I parties are significantly weaker than for Annex I countries. While parties are encouraged to report on their policies and measures, they have complete flexibility in whether and how they do so. While many non-Annex I parties do report on policies and measures contributing to GHG mitigation, the amount of information provided and the level of detail vary widely from country to country. As noted earlier, non-Annex I national communications are not subject to expert review, or to consideration by the Compliance Committee under the Kyoto Protocol.

Targets

Verification of an Annex I party's compliance with its emissions target under the Kyoto Protocol entails a comparison of its emissions, as reported in its national inventory, with its "assigned amount" (the emissions level permitted under its target). A party's assigned amount is determined according to rules for the accounting of land use-related emissions and removals and use of the Kyoto trading mechanisms. Annex I Parties report on additions and subtractions to their assigned amount in conjunction with their annual inventories; these reports are reviewed by expert teams for conformity with the Kyoto Protocol's accounting rules.

In addition, land use accounting and use of the Kyoto mechanisms are monitored through an electronic system of national registries and the Independent Transaction Log (ITL) administered by the UNFCCC Secretariat. All transactions covered by the Kyoto Protocol are checked by the ITL for consistency with the Kyoto accounting rules before they occur. Because monitoring and verification takes place in real time, unauthorized transactions are unlikely.

At the end of the Kyoto commitment period, an expert review team will assess whether a party's cumulative emissions exceed its target (including allowances and credits acquired through the Kyoto mechanisms). The team's report will automatically be considered by the Enforcement Branch of the Compliance Committee. If the Branch determines the party is out of compliance, it must suspend the party's ability to participate in the Kyoto mechanisms and apply an emissions deduction to the party's target for the subsequent commitment period.

As noted above, current provisions for inventory verification and the eligibility rules are sufficient to enable verification of emissions targets. It is not clear, however, whether the Compliance Committee's ability to apply punitive consequences will be sufficient to enforce these targets. While the emissions deduction may present a significant disincentive, it cannot practically be enforced—parties may simply take the potential for a subtraction of tons into account when negotiating new commitments.

Verification and Compliance in a New Agreement

Established mechanisms under the UNFCCC and the Kyoto Protocol—in particular, the rigorous reporting and review requirements for Annex I emission inventories—provide a valuable starting point for the verification of mitigation efforts under a new climate agreement. However, existing practices would need to be strengthened and adapted, and new ones established, to provide credible verification within a framework that is likely to incorporate diverse mitigation actions and commitments. This "variable geometry," and the sovereignty concerns of many parties, would also require new approaches to compliance.

As noted earlier, the details of verification and compliance will depend heavily on the specific structure of an agreement. This section outlines a general approach employing common procedures for reporting and review, and, within this common framework, differentiated requirements for different groups of parties and types of mitigation action. The basic elements are:

- *Annual GHG emission inventories*, required immediately for developed countries, and phased in, with support, for all developing countries with emissions exceeding an agreed threshold;
- *National verification* of mitigation commitments and actions, in accordance with COP guidelines;
- *Regular implementation reports* providing detailed information on a party's implementation, and verification, of its mitigation commitments or actions;
- *Expert review* of parties' GHG inventories and implementation reports; and

- *Determinations of compliance* by a COP-appointed Implementation Committee, which provides facilitative support and/or enforces market eligibility rules in cases of non-compliance.

GHG Inventories

Current Annex I requirements for GHG inventory reporting and review should be maintained for developed countries and phased in for all developing countries whose emissions exceed an agreed threshold. High-quality inventories are an essential foundation for strong and credible mitigation efforts. Existing Annex I requirements provide a reliable basis for verification of economy-wide emission targets and, for parties with no economy-wide targets, would provide a sound basis for assessing the overall effect of a party's mitigation actions. For developing countries, more frequent inventories also would provide an important stimulus for ongoing data collection and for maintaining in-country inventory capacity.

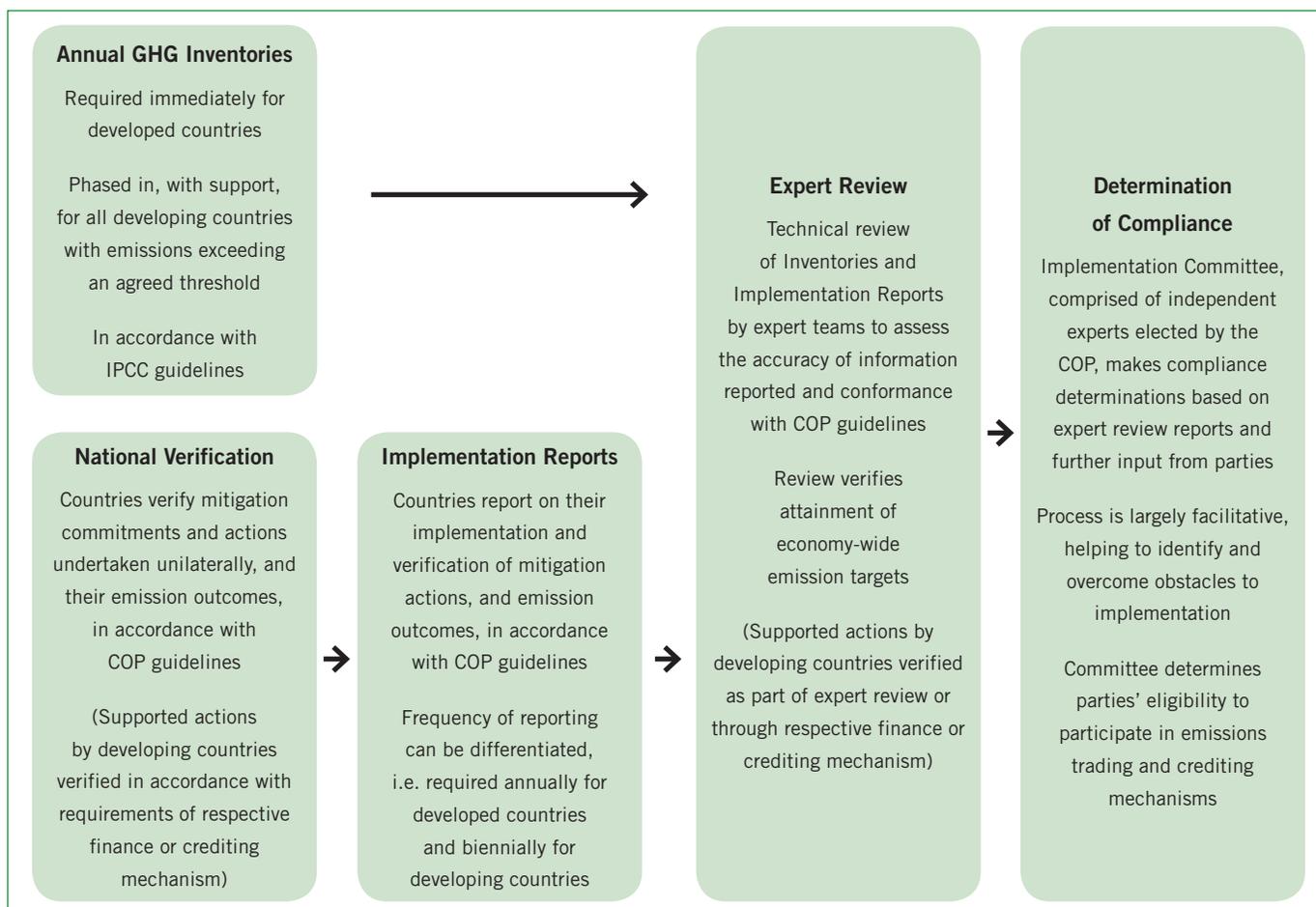
Inventories should follow the IPCC Good Practice Guidance, include a full-time series of emissions data, and provide documentation of the methodologies used. Compliance with inventory reporting requirements, as determined by the Implementation Committee, could be made an ongoing condition for participation in any emissions trading or crediting mechanisms.

More rigorous and frequent inventories by major developing countries would necessitate greater financial support, at least in initial stages, in order to establish and maintain the necessary national capacities.

National Verification

For both developed and developing countries, the verification of mitigation commitments and actions undertaken unilaterally, and of their emission outcomes,

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should be performed nationally. (In the case of supported actions by developing countries, verification should be in accordance with the requirements of respective finance or crediting mechanisms.)

Strong international guidelines are needed to ensure the rigor and comparability of parties' national verification procedures. Like the requirements for national inventory systems for Annex I parties under the Protocol, these guidelines should establish minimal functional requirements, but provide sufficient flexibility to accommodate different national circumstances. The guidelines should address issues such as institutional arrangements, data collection, selection of performance metrics, verification procedures, and frequency.

An open question is whether a new agreement will establish uniform accounting rules for parties with economy-wide emission targets (for instance, with respect to land use emissions or the use of international trading or offsets) or whether accounting will be left to the discretion of individual parties. Whatever the outcome, national verification procedures will need to be shaped accordingly.

All countries should report on their national verification procedures in their implementation reports, to be reviewed by the expert review teams.

Implementation Reports

With the exception of the inventory and accounting rules for Annex I targets, existing requirements under the Convention and the Kyoto Protocol do not provide an appropriate mechanism for the reporting of mitigation actions. National communications are too broad and inconsistent—and, in the case of non-Annex I parties, too infrequent—to provide reliable information on which to base a credible review.

A new agreement should require the regular submission of implementation reports by all parties that have agreed to explicit mitigation commitments or actions. These reports should provide detailed information on a party's implementation efforts, the resulting emission outcomes, and the party's verification of both.

The frequency of reporting could be differentiated—for instance, it could be required annually for developed countries

and biennially for developing countries. The implementation report need not substitute for a national communication (although the scope of the national communications could be narrowed if implementation reports are required). Instead, it could serve as a more detailed, rigorous, and regular version of the policies and measures chapter of the national communications now required of Annex I countries.

Developed countries should report on domestic policies to achieve their national emissions targets, including their use of emissions trading and other mechanisms. Developing countries should report on implementation of both unilateral and supported actions. (In the case of supported actions, the specific information to be provided may be determined through the relevant finance or crediting mechanism.) All parties should describe their national verification procedures, and what their application has shown with regard to both actions and emission outcomes.

Guidelines should be adopted by the COP to ensure that the information provided is relevant, reliable and, to the extent possible, comparable across parties.

Expert Review

All inventories and implementation reports should undergo a technical review by an expert team to assess the accuracy of the information provided, and a party's conformance with international guidelines. Reviews should include periodic in-country visits.

In the case of inventories, review should be modeled on current practices for Annex I inventories. For all parties, the review should assess the adequacy of the data and methodologies employed. If the agreement were to link eligibility for emissions trading or crediting to inventory requirements, the review would need to assess whether an inventory conforms to those requirements.

In the case of implementation reports, reviews should assess whether national verification procedures conform to international guidelines, and whether a report reliably describes a party's implementation efforts and the resulting emission outcomes. For parties with economy-wide emission targets, the review should further verify whether a party's

target has been attained. Supported actions by developing countries also should be verified, either as part of the comprehensive review of a party's implementation report, or through the pertinent finance or crediting mechanism.

Expert reviews should produce individual inventory and implementation review reports for each country, which should be forwarded for consideration by the Implementation Committee. In the case of supported actions, the reports also could be considered by relevant finance or crediting mechanisms as a basis for verifying actions or determining continued support.

Determination of Compliance

The verification of mitigation efforts under a new agreement should lead to a clear determination of a party's compliance with its obligations. This compliance procedure should be largely facilitative, helping to identify and overcome obstacles to implementation, rather than punitive in nature.

Compliance should be overseen by a new Implementation Committee comprised of independent experts nominated by parties and elected by the COP based on equitable geographical distribution. Members would serve in their individual capacities. The committee would:

- Make determinations as to whether a party is in compliance with its commitments;
- Determine whether a party has satisfied the agreement's rules relating to mechanism eligibility (emissions trading, crediting, etc.); and
- Work with non-complying countries to help them identify obstacles to implementation and take corrective measures.

Compliance procedures under other multilateral agreements suggest different ways that the committee's review could be triggered. Countries could be considered on a fixed, differentiated schedule. For instance, under the World Trade Organization's Trade Policy Review Mechanism, the four biggest traders (the European Union, the United States, Japan and China) are reviewed every two years, the next 16 biggest traders every four years, and the remaining countries every six years. A similar approach, based on a party's emissions levels, could be used to determine the frequency of review under the new compliance procedure.

A second, potentially complementary, approach would be to review countries whenever an expert review team report raises a compliance-related issue that the committee determines warrants further investigation. An agreement also could allow individual parties or the Secretariat to trigger a review by raising questions about a country's compliance, one avenue available in the Montreal Protocol's Non-Compliance Procedure.

Regardless of which triggering method is adopted, the Implementation Committee would review a party's compliance based on the expert review team report as well as any additional information provided by the party under review. The committee could also take into account information from other sources, provided the party under review had the opportunity to respond to any such information.

If the Implementation Committee determines that a country has not complied with its commitments, or if it identifies other implementation problems, it should enter into a constructive dialogue with the country concerned to identify the obstacles to compliance and potential means of improving implementation, including through the provision of technical and financial assistance. The committee also should be empowered to suspend a party's ability to participate in emissions trading or crediting if it finds that the party is not in compliance with the relevant eligibility rules.

Conclusions

A post-2012 climate agreement will be most effective if parties are confident that it enables them to assess how well others are fulfilling their obligations. To ensure that parties' mitigation efforts are "verifiable," as called for in the Bali Action Plan, a new agreement must set rigorous standards for reporting and review of the emissions and the mitigation actions of all major GHG-emitting nations. This verification system can build on existing practices under the UNFCCC and the Kyoto Protocol, but new approaches are needed to ensure consistent rigor across parties and to accommodate a broader range of commitment types.

Beyond verification of reported actions and information, a new agreement should provide for a clear determination of whether a party is in compliance with its commitments.

While a penalty-based approach might ideally provide additional incentives for compliance, the threat of punitive consequences could deter some parties from participating in the agreement. Rather, the compliance mechanism should be largely facilitative, producing an independent determination of a party's compliance status and, in cases of non-compliance, providing implementation assistance.

This is one in a series of policy briefs examining post-2012 international climate policy. The Pew Center on Global Climate Change was established by the Pew Charitable Trust to bring a new cooperative approach and critical scientific, economic, and technological expertise to the global climate change debate. We inform this debate through wide-ranging analyses that add new facts and perspectives in four areas: policy (domestic and international), economics, environment, and solutions.



Pew Center on Global Climate Change

2101 Wilson Boulevard
Suite 550
Arlington, VA 22201 USA

Phone: 703.516.4146
www.pewclimate.org