

Strengthening MRV: Measurement, Reporting and Verification

A central issue in negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) is how best to provide for the measurement, reporting and verification (MRV) of parties' mitigation actions and support. This brief describes and evaluates existing requirements under the UNFCCC and the Kyoto Protocol, and outlines recommendations for building on these mechanisms to establish a more robust MRV system. This enhanced system should include: significantly strengthening the existing system of reporting and expert review, and establishing a new mechanism for peer review of mitigation actions. Peer review and expert review would together constitute the international "consultations" and "analysis" envisioned in the Copenhagen Accord.

Strengthening measurement, reporting and verification (MRV) is a critical step in the evolution of the international climate regime. Effective MRV can strengthen confidence among parties and in the regime by better enabling parties to assess how well others are fulfilling their obligations. It also can help parties track progress toward a long-term climate goal, learn from one another's policy experiences, and target support for parties' implementation efforts.

The Bali Action Plan, which framed the current round of negotiations, calls for the mitigation commitments and actions of both developed and developing countries, and the support provided to developing countries, to be "measurable, reportable and verifiable."

The Copenhagen Accord began to elaborate the shape of an enhanced MRV system. The Accord—a political agreement among most parties that has no formal standing under the United Nations Framework Convention on Climate Change (UNFCCC)—calls for: the MRV of developed country emissions targets "in accordance with existing and any further guidelines;"

domestic MRV of developing countries' "autonomous" mitigation actions, and international MRV of their internationally supported actions; and reporting of developing countries' actions, domestic MRV and greenhouse gas (GHG) inventories in biennial reports, "with provisions for international consultations and analysis under clearly defined guidelines that will ensure that national sovereignty is respected."

To move forward, parties must now take decisions under the UNFCCC formally establishing the broad structure of an enhanced MRV system, and a process to develop further details and guidance to parties. With these decisions, parties will be building on existing MRV mechanisms under the UNFCCC and the Kyoto Protocol. The MRV system would likely further evolve at the stage when parties are ready for new legally binding commitments.

This brief describes and evaluates existing requirements under the Convention and the Kyoto Protocol, and outlines recommendations for building on these mechanisms to establish an enhanced climate MRV system.

MRV Provisions in UNFCCC and Kyoto Protocol

The UNFCCC requires all parties to submit national communications and national GHG 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 tracking of emission targets and use of the flexible mechanisms (emission trading, Joint Implementation and the Clean Development Mechanism). Both agreements also provide for the international review of information submitted by Annex I parties.

Greenhouse Gas Inventories

Article 12 of the Convention requires both Annex I and non-Annex I parties to prepare and submit national GHG inventories. However, the frequency of these 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 Kyoto Protocol, to enable determination of compliance with emissions targets. Annex I parties are required to submit detailed annual GHG inventories, prepared using the most recent methodologies established by the Intergovernmental Panel on Climate Change (IPCC) and reported according to agreed guidelines.

Under the Kyoto Protocol, 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.

Non-Annex I

For non-Annex I parties, inventories are not reported separately, but only 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). Guidelines have been adopted for second national communications, and are currently being negotiated for the third. To date, 138 non-Annex I parties have submitted their initial national communications, 31 have submitted their second, two have submitted their third (Mexico and Uruguay) and one (Mexico) has submitted a fourth.

The guidelines for non-Annex I inventories are weaker in several other respects: the use of the most recent 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); and emissions and removals are reported only at a summary level with no requirement for detailed sectoral breakdowns or background data tables. 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.

Lack of capacity is a major barrier to better reporting 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.

Greenhouse Gas Mitigation Measures

Under the UNFCCC, 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.

Annex I

Annex I parties are required to provide detailed information in their national communications on the policies and measures they are implementing to meet their UNFCCC 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.

The national communications of Annex I parties are also subject to review. Detailed guidelines have not been developed and the reviews are largely facilitative: expert teams meet with national experts and stakeholders to understand, and provide feedback on, information reported in the national communication. The lack of specificity in reporting guidelines does not allow a full assessment or verification of the effectiveness of specific measures reported by Annex I parties in their national communications.

In the case of an Annex I party to Kyoto, attainment of its emissions target is verified through a comparison of its emissions, as reported in its national inventory, with its "assigned amount" (the emissions level permitted under its target, as determined according to rules for the accounting of land use-related emissions and removals and use of the Kyoto trading mechanisms). 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. At the end of the Kyoto commitment period, an expert review team will assess whether a party's cumulative emissions exceed its target. The team's report will automatically be considered by the Enforcement Branch of the Compliance Committee, which can apply punitive consequences in cases on noncompliance.

Non-Annex I

As with national inventories, the reporting guidelines for non-Annex I parties are significantly weaker. 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.

Provision of Support

Developed countries have a number of commitments under the Convention and the Protocol relating to the provision of support to developing countries. In their national communications, they are required to report the resources they provide for these

purposes bilaterally and through the Global Environment Facility (GEF) and other multilateral organizations. With respect to technology transfer, parties report on activities undertaken by both the public and private sectors.

The quality of reporting is mixed. Quantification of financial resources provided for developing countries in aggregate is relatively straight forward. Contributions to the GEF institutions can be identified as expenditures in national budgets. However, data gaps and inconsistencies in the reporting of resources provided bilaterally and through other multilateral channels suggest that Annex II parties have difficulty in collecting and reporting this information. Further, there is no common standard for determining the extent to which these resources are specifically dedicated to climate change, and what constitutes “new and additional” financing. As a result, information is not generally reported in a way that facilitates comparison and evaluation. The OECD Development Assistance Committee has developed a reporting standard (the “Rio Markers”) to improve the consistency and completeness of parties’ classification and reporting of climate assistance. Use of this standard has been encouraged for reporting in national communications, but is not required.

The information reported is reviewed along with the rest of a party’s national communication. Generally, the expert review team attempts to verify the reported information in conversations with national experts, but it is not cross-checked against information from the GEF or other multilateral institutions, or against the party’s primary documents, such as fiscal budgets. As in the case of GHG policies and measures, the very general nature of the reporting guidelines and the corresponding vagueness of the review guidelines do not ensure consistent reporting, or allow for verification of parties’ implementation of these commitments.

MRV in an Evolving Climate Regime

Existing practices can be strengthened and adapted, and new ones established, to provide a more robust system for the MRV of parties’ mitigation efforts and of support for developing countries. In addition to strengthening and expanding requirements for reporting and review, this enhanced system should establish an additional layer for “peer review” of

parties’ mitigation actions. Expert review and peer review would together constitute the international “consultations” and “analysis” envisioned in the Copenhagen Accord.

Reporting

Parties should report by three principal means: GHG inventories, national communications, and biennial implementation reports. In each case, support for capacity building in developing countries should be provided, and longer reporting cycles should be allowed for least developed countries.

GHG Inventories—High-quality inventories are an essential foundation for strong and credible mitigation efforts. Current Annex I inventory requirements provide a solid basis for assessing progress toward emission targets, but requirements for non-Annex I inventories need substantial improvement. Annex I guidelines should be gradually phased in for developing countries, requiring annual inventories using the most recent IPCC methodologies, including a full-time series of emissions data and documentation of the methodologies used. The level of sectoral detail and background data provided should also be increased.

National Communications—All countries should submit full national communications every four years, and guidelines should be strengthened to provide for full and consistent reporting of mitigation actions and outcomes, and of support provided and received.

For the reporting of mitigation actions and outcomes, guidelines should provide a standardized template and definitions for presenting information on the types of action undertaken, the status of their implementation, and their effect on GHGs. Particular attention should be given to the selection of performance metrics, to ensure that the information reported is relevant and useful. In the case of countries with economy-wide emission targets, guidelines should provide a common template for reporting on target accounting, including the use of sinks and emissions trading.

Countries also should be required to describe their national MRV procedures, and guidelines for good practice in domestic MRV should be developed. (In the case of supported actions,

the specific information to be provided may be determined through the relevant finance or crediting mechanism.) Like the requirements for national inventory systems for Annex I parties under the Kyoto Protocol, these guidelines should define MRV functions, such as data collection, selection of performance metrics, verification procedures and frequency, rather than specific arrangements and procedures. A functional approach would ensure that the guidelines are flexible enough to accommodate different national circumstances and capacities.

Reporting of support will also require significant strengthening. Developed country reporting guidelines should be enhanced to ensure transparency and comparability of reported data, and all countries should report on finance—provided or received—in national communications. (See the Pew Center policy brief, *Strengthening International Climate Finance*.)

Biennial Reports—Parties should establish a requirement for a new biennial implementation report to be submitted in conjunction with, or between, full national communications. The report should include the party's annual GHG inventory, and updates on the status of its mitigation actions and outcomes, and on any support provided or received.

Expert Review (“Analysis”)

All reports submitted by parties should be subject to an independent, technical assessment of the accuracy and completeness of information reported, and its conformity with the relevant reporting requirements. In addition, these reviews should allow parties the opportunity for dialogue with expert reviewers to share knowledge and best international practice.

These assessments should be undertaken by the types of expert review teams that now conduct Annex I reviews, and would serve as the “analysis” phase of international consultations and analysis. Reports of the expert review teams would provide an important input to the later peer review, or “consultations,” phase.

To facilitate the review of information on the provision of support, the COP should seek cooperation of multilateral development banks (MDBs) in identifying the levels of resources dedicated to specific climate-related activities. This information would provide a broader picture of overall

aid flows, and a useful basis for comparison to information reported by developed and developing countries on their provision and use of support.

Peer Review (“Consultations”)

In strengthening the MRV of mitigation actions, parties should establish a new peer review process serving as the “consultations” phase of international consultations and analysis. This process should be modeled in key respects on the types of peer review systems already in place in many other multilateral regimes (see the Pew Center policy brief, *MRV: A Survey of Reporting and Review in Multilateral Regimes*). Its purpose should be to assess the implementation and effectiveness of parties' mitigation actions, as well as to promote mutual learning and to provide support for improved implementation.

The peer review should take the form of an interactive open-session dialogue among parties. Initially, it should be conducted by the Subsidiary Body on Implementation (SBI). However, parties should initiate a process to establish a dedicated body comprised of a subset of parties to conduct peer review in the future. This body could be established under the Multilateral Consultative Process envisaged in Article 13 of the Convention. While peer review should apply to all parties, its frequency should be differentiated; it should occur every two years for the largest emitters, and less frequently for others.

Inputs to the peer review should include all reports submitted by a party under review (inventories, national communications and biennial reports), the reports of expert review teams, any responses from the party, and questions or comments from other parties. The party under review should have the opportunity to present information in open session on its implementation efforts, and other parties should have the opportunity to comment or ask questions. Following the discussion, all inputs should be publicly released, as well as a written summary of the proceedings, including a party's response to the expert reports and questions from other parties.

Consequences should be facilitative only (i.e., not punitive). In cases where implementation is falling short, the review

should seek to identify obstacles to implementation, and to channel technical and financial support to improve a party's performance.

Summary

The basic elements of an enhanced climate MRV system should include:

Reporting—Parties should report by three principal means (with capacity-building support for developing countries and longer reporting cycles for least developed countries):

- Inventories—Developed countries should continue to submit annual GHG inventories; similar requirements should be phased in for developing countries.
- National communications—All countries should submit national communications every four years, with improved reporting of policy actions and outcomes, and of support provided and received.
- Biennial reports—Parties should establish a new biennial implementation report containing updated information on a party's actions and support.

Expert Review—All reporting inputs (inventories, national communications and biennial reports) should undergo an independent technical assessment for accuracy, completeness and consistency with COP guidelines.

Peer Review—Parties should establish a new system of peer review to assess the implementation and effectiveness of mitigation actions. This review:

- Should take the form of an interactive in-session dialogue, conducted initially by the SBI and later for a new body comprised of a subset of parties;
- Be conducted every two years for the largest emitters, and less frequently for other parties;
- Consider all reporting inputs, plus the reports of expert review teams, a party's response, and questions and comments from other parties;
- Provide for public release of all inputs and a summary of the proceedings;
- Provide facilitative support to parties to enhance their implementation of mitigation actions.

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.



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