

# Transparency as Contested Political Terrain: Who Knows What about the Global GMO Trade and Why does it Matter?

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## Introduction

In a changing global environmental governance context, the frontiers of governance innovations are ever-shifting. In an evolving kaleidoscope of innovations, one deserves more sustained scrutiny than it has received to date, given its ubiquitous presence in global environmental governance. This is the phenomenon of “governance by transparency” or governance by information disclosure. Transparency is widely associated with more accountable, legitimate, democratic and effective governance, partly based on an assumption that transparency can empower those at its receiving end.<sup>1</sup>

Such associations and assumptions require much more sustained scrutiny.<sup>2</sup> In the global environmental domain, transparency is being embraced by various actors as a norm, a procedural principle and/or mechanism of governance. As noted in the introduction to this special issue, disclosure of information—as one manifestation of a transparency trend—is central to numerous governance initiatives. Yet diverse normative rationales underpin this embrace of transparency and it is promoted by multiple actors to serve distinct and often conflicting ends.<sup>3</sup>

It has become imperative to analyze transparency as a key political arena where ongoing conflicts over norms, practices and objectives of global environ-

\* My thanks to Frank Biermann, Michael Mason, Arthur Mol, Roberto Pereira-Guimaraes, Dimitris Stevis, two GEP anonymous reviewers and fellow participants in the *Transparency in Global Environmental Governance* Workshop at Wageningen University for their helpful comments on an earlier version of this article.

1. For the perils and promises of transparency in global governance, and its posited links to accountability, legitimacy and effectiveness, see Fung et al. 2007; Graham 2002; Keohane 2006; and Mitchell 1998.
2. The introduction and epilogue of this issue highlight travails and triumphs of transparency in global environmental governance, see Gupta 2010b; and Mol 2010.
3. On this, see also Gupta 2008; Mason 2008; and Florini 2008.

mental governance take place, even as it becomes important to consider whether transparency can itself be a transformative force in reshaping such practices and dynamics.<sup>4</sup> Writings on transparency in a global environmental context have ranged from a liberal institutionalist and functionalist view that “more and better information” can aid in effective international environmental cooperation,<sup>5</sup> to more constructivist perspectives that analyze information itself as an arena of political conflict rather than as a means to rationalize such conflicts.<sup>6</sup> Drawing on this latter perspective, one key question is not so much whether transparency can ameliorate information asymmetries in order to promote more rational outcomes, but whether it can reconfigure existing power asymmetries and hence be transformative.

With such a concern as its point of departure, this article analyzes governance by transparency in global biosafety politics. Ensuring biosafety, or safe trade in genetically modified organisms (GMOs), remains a controversial global risk governance challenge, one where the very existence of risk and harm remains contested. The implications of relying on governance by disclosure in such a normatively and scientifically contested global political arena are particularly important to consider.

I focus here on governance by disclosure in the global regime of the Cartagena Protocol on Biosafety, negotiated under the Convention on Biological Diversity (CBD). The Cartagena Protocol seeks to govern safe transboundary transfer and use of GMOs. It advances the notion of “advance informed agreement” of an importing country as the central mechanism through which to mitigate potential harm resulting from trade in GMOs. Advance informed agreement derives from the longer established notion of “prior informed consent,” used in the international realm to govern trade in risky substances such as hazardous wastes and restricted chemicals. Prior informed consent is intended to be a compromise between two alternative (and more extreme) policy options: an outright ban on trade as a way to avoid harm, versus a *caveat emptor* or “let the buyer beware” approach where the onus to know about and avoid harm rests solely with a buyer.<sup>7</sup> Yet the policy compromise of prior informed consent is far from widely shared, as becomes clear from conflicts over institutionalizing the disclosure obligations that lie at the heart of it.

In this article, I analyze disclosure relating to global GMO transfers as it is being institutionalized within the Cartagena Protocol regime and the aims and beneficiaries of such disclosure in practice. This assessment requires, first and foremost, a more systematic delineation of the various aims that disclosure is presumed to further. Such aims can be broadly conceptualized as normative, procedural and substantive. Disclosure may seek to further, first, a *normative* right to know of recipients as an end in and of itself; second, it may seek to fur-

4. For a few insightful earlier discussions of this, see Langley 2001; and Mol 2006 and 2008.

5. Mitchell 1998.

6. Jasanoff 2004.

7. Mehri 1988.

ther various *procedural* ends, such as enhanced participation or choice of recipients, or enhanced accountability of disclosers; and finally, disclosure may seek to further *substantive* ends such as environmental improvements, sustainable resource use or risk reduction. If so, an assessment of how governance by disclosure is working (its “effectiveness”) needs to consider not only substantive outcomes but also its normative and procedural effects.<sup>8</sup>

The aims of prior informed consent—as one manifestation of governance by disclosure—can also be similarly categorized. Normatively, prior informed consent seeks to further a right to know about transfers of risky substances (for those at the receiving end of such transfers); procedurally, it aims to enhance informed choice (and hence empower) recipients; and substantively, it seeks to ensure oversight and risk mitigation relating to the GMO trade. In this highly contested policy domain, however, such governance aims are by no means consensual. For those advocating globally for market access for GMOs (that is, GMO producers and exporters), the aims to be pursued by prior informed consent relate more to evidence-based efficient decision-making so as to *facilitate trade*, rather than ensuring recipient right to know and choose as a means to potentially *restrict trade*. Prior informed consent’s governance aims can thus be interpreted in potentially contradictory ways.<sup>9</sup>

This reinforces the point made above that remains a key site for contestation over the broader norms and objectives of global risk governance. Analyzing how information disclosure is being institutionalized within this global regime can reveal whose normative, procedural and substantive aims are furthered by disclosure, and the implications for the oft-alleged potential of transparency to empower.

Although there are various information disclosure obligations in the Cartagena Protocol, I focus here on the most contested aspect of disclosure in this context: the nature and scope of information to accompany GMO varieties contained in the bulk agricultural commodity trade. Through detailed analysis of the scope and relevance of disclosure relating to such trade, three arguments are advanced. First, I argue that, contrary to promoting informed choice of importing countries, the current limited disclosure institutionalized within this global regime ensures that a norm of *caveat emptor* in fact prevails with regard to GMOs in agricultural trade. The Protocol does not require disclosure of specific and new information regarding GMO varieties in agricultural commodity shipments, and hence fails to operationalize a normative right to know about transfers of risk, as demanded by recipients. The limited scope of disclosure also ensures that disclosers’ (that is, GMO producers and exporters) existing market practices do not have to change. As a result, I argue that disclosure relating to the GMO trade as mandated in this global governance context is market following rather than market forcing.

8. For more detailed discussion of this typology, see Gupta 2010a.

9. See also Wolf 2000.

Furthermore, in order for recipients to put limited disclosed information to use, the onus rests on them to put into place complex infrastructures of sampling, testing and verification of disclosed information. I argue that such “infrastructures of transparency” are increasingly central to governance by disclosure, giving rise to new forms and loci of authority. Whether such new forms of authority ameliorate or exacerbate informational and power asymmetries (and whose governance aims they further) is a crucial issue meriting further conceptual and empirical inquiry.

Meanwhile, those unable to “make transparency work” for them via such infrastructures of testing and verification have to contend either with *caveat emptor* or else resort to alternative regulatory tools such as bans in order to meet their substantive goals of risk reduction. As a result, I conclude that the potential of transparency to empower is yet to be realized in this area, particularly for the poorest developing countries most reliant on globally-induced disclosure.

In developing these arguments, the article first details the political negotiations and conflicts around the scope of disclosure relating to the global GMO commodity trade. I then analyze the consequences of the Protocol’s current disclosure obligations and practices for the normative, procedural and substantive aims that transparency furthers. The analysis is based upon participant observation of Cartagena Protocol negotiations and primary and secondary sources.

## Negotiating the Boundaries of Disclosure: Actors and Scope

Disclosure relating to GMOs traded globally for use as food, feed or for processing (agricultural commodities) remains one of the central axes of conflict within the Cartagena Protocol. Agricultural commodities account for the vast majority of globally traded GMOs and the economic stakes are high, given that GMO-related disclosure will have important implications for the multibillion dollar global agricultural commodity trade. Of the most heavily traded commodity crops, four have a growing number of GMO varieties (soybean, maize, canola and cotton).<sup>10</sup> Of these, the first three are widely used for animal feed, food and in a vast array of processed foods. Genetically modified varieties of other important globally traded food crops such as wheat and rice are also in different stages of testing and commercialization.<sup>11</sup>

Although agricultural commodities are imported by a large number of countries, their export—and the export of genetically modified (GM) varieties of such commodities in particular—is limited to relatively few countries. These include the United States (with roughly 50 percent of all GM production and trade), Canada, Australia, Argentina, Brazil and China (these latter three coun-

10. James 2008.

11. James 2008.

tries account for almost 90 percent of all GM crops grown in developing countries).<sup>12</sup> Key importers of bulk agricultural commodities include the European Union (EU), Japan, Mexico, China, South Africa, and many other countries in the global South.

Following contentious negotiations among these key players, the 2000 Cartagena Protocol called for a two-stage disclosure obligation relating to the global GMO trade.<sup>13</sup> As a first step, as soon as a commercial variety of a genetically modified crop receives domestic approval in a country of production, this is to be reported to an online Biosafety Clearing House (BCH) within 15 days of approval being granted.<sup>14</sup> The second step calls for exporters to disclose certain information along with agricultural commodity shipments, once underway. I focus here on this latter step. Here, the 2000 agreement requires agricultural commodity shipments with GMO varieties to be accompanied by a declaration that they “may contain” GMOs (rather than declaring that they “contain” GMOs and specifying which ones, as demanded by the EU and most developing countries). An initial coalition of GMO producing countries consisting of the US, Canada, Australia, Argentina, Chile and Uruguay vigorously opposed this demand for more specific disclosure in lead-up to Protocol adoption in 2000, because it would have required mandatory segregation of GM from non-GM varieties in the agricultural commodity chain, and would thus be expensive and trade disruptive in their view. Their only concession was to agree to revisit the issue two years after entry into force of the Protocol.<sup>15</sup>

Disclosure about GMO varieties in agricultural trade has remained a prominent global arena where conflict between shifting and evolving coalitions of GMO exporting and importing countries continues to play out. An important dynamic shaping disclosure in this global context is that the axis of conflict is not along North/South lines. Instead, the main dynamic is between GMO exporting and importing countries, and each of these categories includes both developed and developing countries. Furthermore, two global economic powerhouses fall on either side of this main axis of conflict, with the European Union (often allied with Japan and a majority of developing countries, particularly in Africa) consistently articulating the GMO importer perspective, and the US and allies such as Canada, Australia and Argentina consistently articulating the GMO exporter perspective. Unlike in other cases of governance by disclosure, where the “powerful” might have to disclose to the “less powerful,” here a transatlantic divide of power shapes norms and practices of disclosure.

Added to this are the evolving positions of some large developing and

12. Zepeda 2006.

13. For detailed analysis of these early negotiations, see Bail et al. 2002 and Gupta 2000.

14. This step is not discussed further here. In a detailed analysis of BCH disclosure elsewhere, I argue that information currently disclosed to the BCH may, paradoxically, promote exporting country goals of efficient decision-making and market access rather than importing country goals of informed choice. It may thus be market facilitating rather than market regulating (Gupta 2010a).

15. Cartagena Protocol 2000, Article 18.

OECD countries, such as Brazil, China, South Africa, New Zealand and Mexico, which are either both exporting and importing countries (China, South Africa) or are concerned about impact on their non-GMO agricultural exports (New Zealand)<sup>16</sup> or about trade relationships with GMO exporters (Mexico).<sup>17</sup> It is in the realm of shifting global agricultural trade relationships between these key players that the norms and practices of disclosure are hashed out.

A second important dynamic shaping disclosure in this context is the Party/non-Party to the Protocol status of these key players, given that most exporting countries (such as the United States, Canada, Argentina and Australia) are not currently Parties to the Protocol, while most of those articulating importer perspectives (including the European Union and most developing countries) are Parties. Furthermore, those with competing and shifting interests (whether exporter or importer) such as Brazil, Mexico, New Zealand, China and South Africa, are Parties as well. As one illustration, Brazil wears three hats in this global context: developing country, Party to the Protocol, and exporter. This requires a balancing act to support other developing countries' demands for stringent disclosure, while ensuring that it can itself comply with disclosure obligations as an exporter and not be at a competitive disadvantage vis-à-vis (other) exporting non-Parties who are not legally obliged to comply.

Following another six years of acrimonious negotiations among shifting coalitions of exporting and importing countries, additional disclosure requirements agreed in 2006 call for agricultural commodity shipments that contain "identity preserved GMOs" to declare that they "contain" GMOs. All others, for whom no identity preservation systems exist, still require only a "may contain" declaration.<sup>18</sup> Further negotiations on this are now postponed to 2012. Until such time, exporting countries can also use an existing commercial invoice to disclose information, as pushed for by these countries, rather than a "stand-alone" document, desired by importers, which would draw special attention to GMO presence in a given shipment.<sup>19</sup>

Additional disclosure requirements for shipments still labeled "may contain" include a list of GMO varieties that may be in a shipment, including their scientific, common and/or commercial names, as well as a unique identifier code (a numeric code associated with each genetic transformation), if known. Unique identifiers, developed by the OECD, have been promoted by the EU to facilitate tracking and testing for presence of specific GMO events in individual

16. New Zealand's concern is impact on non-GMO agricultural exports if stringent disclosure requirements are adopted for GMO trade, since adventitious (unintended, technically avoidable) presence of GMOs in non-GMO shipments might require these shipments to be labeled as well (Peters 2006).

17. Mexico (as a GMO importing country) has been a key interlocutor in this global context for its NAFTA (and GMO exporting country) trading partners, the United States and Canada, given that both are not Parties to the Protocol and hence cannot formally participate in the negotiations.

18. CBD 2006.

19. CBD 2006, paragraphs 1 and 4.

shipments. Finally, the 2006 agreement specifies that “the expression ‘may contain’ does not require listing of living modified organisms of species other than those that constitute the shipment.”<sup>20</sup> Thus a maize shipment would not require listing of genetically modified soybean varieties that might be inadvertently present. This caveat has important implications for thorny discussions relating to adventitious presence of GMOs in trade (that is, unavoidable presence of trace quantities of GMO varieties other than those known/intended to be in a shipment).

I turn next to the implications of these disclosure obligations for both exporting and importing countries, and the normative, procedural and substantive goals that they may further.

### **Transparency as Contested Terrain: Whose Right to Know What and Why?**

This section analyzes to whom it matters (and why) that shipments of bulk agricultural commodities need to declare that they “may contain” GMOs, and other agreed aspects of disclosure. I first consider whether an importing country’s normative right to know about GMO transfers is institutionalized by such disclosure, and whether information disclosers’ practices have to change in order to comply. I then analyze the infrastructures of testing and verification that increasingly accompany such disclosure. The final section revisits the question of “transparency for whom” by examining the relevance of these disclosure obligations for different categories of importing countries, given their diverse domestic GMO governance goals.

#### *Transparency as Right to Know: Disclosing Sufficient New Information?*

Disclosure stating that bulk agricultural commodity shipments “may contain” GMO varieties, as well as a list of which ones *may* be in a shipment and their common and scientific names, certainly goes beyond no such information being provided (the status quo in the absence of the Protocol). In assessing the implications of such disclosure for an importing country’s desire to know about GMO transfers *vis-a-vis* an exporting country’s desire to minimize market restrictions, two points are made below: first, the information required to be disclosed is vague; and second, no *new* information needs to be generated by disclosers to meet these obligations.

First, a disclosure obligation that shipments “may contain” GMOs is, as it sounds, imprecise. Essentially, it requires that any bulk shipment of a commodity state that it “may contain” any of the GM varieties of that commodity that have been approved and are in commercial production within an exporting

20. CBD 2006, paragraph 6.

country. It does not require disclosure of specific varieties or quantities that are present (as noted, such specificity would require segregation of GM from non-GM varieties and between GM varieties—which is not current practice in these countries).

In its vagueness, a “may contain” disclosure requirement simultaneously reveals too much and too little information. Even as it provides a long list of potential GMO varieties that could be in a shipment, no information is revealed about which varieties are actually present. This highlights a challenge of relying on transparency as a tool of governance—that it can be subverted in practice via the phenomenon of “drowning in disclosure” or provision of too much information, where the relevant is buried in the irrelevant and hard to find, if provided at all.<sup>21</sup>

Second, a “may contain” disclosure obligation reveals information that already exists and is known to exporters. Essentially, any bulk shipment with GM crop varieties requires such a declaration if shipped from an exporting country with no segregation between GM and non-GM varieties in place, which holds for the vast majority of exporting countries. As a result, no new information needs to be generated. This goes to another key issue in assessing effects of disclosure, whether new information has to be generated to comply with disclosure obligations, increasing the likelihood that disclosure will have behavior-altering consequences.

The fact that no new information is needed to comply with a “may contain” disclosure obligation is reinforced by the caveat in the Protocol’s 2006 decision that, in listing GMOs that *may* be present in a shipment, only those of the same species as the commodity being traded need to be listed. Here, again, the burden of testing for and disclosing possible adventitious presence of GMOs of other species (information that is not presently known to exporters) is avoided.

In sum, a disclosure requirement that bulk shipments of commodities have to be accompanied by a declaration that they “may contain” GMOs is vague and reveals what is already known to disclosers. Equally important, it does not shift the burden of responsibility to test for presence of specific GMOs to exporting countries, a key goal pursued by importing countries through governance by disclosure. Finally, the means of disclosure agreed here—an existing commercial invoice rather than stand-alone document—is the least burdensome for exporters, entailing little change in existing practices and being the least market restrictive means of complying with disclosure requirements.

A key conclusion is that no established practices have to change in order for exporting countries to meet GMO disclosure obligations. According to in-

21. This has been noted in a various writings on pathologies of disclosure. For financial transparency, see “Drowning in Data” (CFO 2007). See also Gupta 2008 for brief discussion of this in a global environmental governance context.

dustry analyses, disclosing more detailed information such as which GMO varieties are actually present in a shipment, is impossible to realize currently, given how agricultural commodity trade is organized.<sup>22</sup> Such disclosure would require mandatory segregation of GMO from non-GM varieties (and between GM varieties) and elaborate testing at various points in the commodity chain, with the onus to do so resting on exporting countries. Instead of segregation, however, co-mingling is still the mainstay of business in GMO producing countries, a process whereby grain from multiple sources is mixed at different points, constantly changing the ratio of genetically modified to non-modified varieties in any given grain shipment.<sup>23</sup>

From an importing country perspective, however, the imprecise “may contain” declaration does not reveal relevant and usable information needed in order to be sufficiently informed about GMOs entering a country’s borders<sup>24</sup>; nor does it facilitate meeting related procedural and substantive domestic GMO governance aims such as consumer choice, labeling, traceability and food safety, all of which—to varying degrees—may require greater specificity.<sup>25</sup>

A final point to be considered here is the additional disclosure obligation, agreed with much fanfare in 2006, to state (for those genetically modified organisms for which identity preserved varieties exist) that they “contain” GMOs. At first glance, this appears to be a significant advance over the “may contain” obligation. A quick assessment reveals, however, that identity preservation, as a concept and a practice, is more commonly associated with non-genetically modified varieties of those crops where genetically modified varieties exist. The idea of identity preservation is to ensure that a high-value crop (usually non-GM, more rarely GM) is not contaminated with other GM or non-GM varieties.<sup>26</sup> The practice thus far is that identity preserving a non-GMO variety of a heavily traded crop with GM varieties (such as soybean) makes economic sense for exporting countries that wish to supply markets that desire non-GM soybean (either for use in organic agriculture or because of other domestic imperatives). Brazil is a classic example, whereby identity preservation may be undertaken to supply guaranteed non-GM soya varieties to the EU or Japanese market.

The Protocol disclosure requirement, however, states that the “contain” obligation is to apply to identity preserved GMO varieties. There are, however, few of these to date, particularly in the first generation of GM varieties, and particularly in countries such as the US, where GM and non-GM varieties are considered substantially equivalent, logically suggesting no reason to identity preserve. Only those GM varieties that have special nutritionally altered charac-

22. For an academic view that stringent documentation requirements would be costly and burdensome for GMO exporters, see Gruere and Rosegrant 2008.

23. USDA 2008.

24. See Dingwerth and Eichinger 2010 for analysis of attributes of disclosed information such as relevance in the Global Reporting Initiative.

25. Implications of disclosure for different categories of importing countries is addressed in a subsequent section.

26. Ceres undated; Elbehri 2007; and Sahai undated.

teristics (such as vitamin A enhanced “golden rice”—not yet commercialized or traded) or other product characteristics (such as altered oil content or quality, for example, high oleic soybean) would, from a market perspective, be worthwhile or necessary to identity preserve.<sup>27</sup>

As a result, where they do exist, such shipments are already marked as containing the GMO variety in question and their production is often undertaken under specific contract between producers and end users.<sup>28</sup> In these cases, the burden of testing and segregation for identity preserved crops is shouldered (willingly) by exporters for market access reasons, given higher price premiums that such crops command.<sup>29</sup> If so, this component of disclosure is also market following (as is the “may contain” obligation), rather than market forcing.

Notwithstanding their limited nature, are disclosure obligations being complied with by exporting countries? Two points are noteworthy here. First, many GMO exporting countries are not Parties to the Protocol and hence not legally obliged to comply. They can only be compelled to do so if an importing country’s domestic laws transpose or go beyond protocol disclosure obligations. Second, given lack of national reporting from non-Parties and the divergent disclosure obligations on them (resulting from varying domestic rules of importing countries), it is difficult to ascertain what exporters are disclosing in general. However, given its non-onerous nature, it is likely that most non-Parties are willing and able to declare that shipments “may contain” GMOs (although unwilling to permit more stringent disclosure obligations to be negotiated, even if they are non-Parties and hence not legally obliged to comply). Thus, the point remains that, even assuming full compliance, the current minimal globally mandated disclosure in this realm reveals little that is useful to recipients and has few material consequences for disclosers.

The discussion above suggests that disclosure in the Cartagena Protocol does not place the burden on exporters to sufficiently inform importers about GMO presence in the global commodity trade. If so, *caveat emptor* largely prevails, with market developments shaping how fast and how far disclosure proceeds in this global realm, rather than disclosure obligations pushing market developments. Meanwhile, with the onus of responsibility remaining on importing countries to ferret out detailed and specific information about traded GMOs, the focus in this global disclosure regime is now shifting to elaborate sampling, detection, testing and verification systems by which to monitor shipments of bulk agricultural commodities with GM varieties. I turn to the implications of this development next.

27. Elbehri 2007, 2.

28. Elbehri 2007, 2.

29. The Protocol does not specify who decides whether an identity preservation system exists for a GM variety and thus if the “contains” disclosure requirement applies. This decision (and this knowledge) in all likelihood resides with the exporter, reinforcing that *de facto* a “may contain” declaration holds for most traded GMOs.

*Making Transparency Work: Sampling, Detection, Verification, Liability*

Given the current scope of disclosure in this global regime, essentially revolving around a “may contain” obligation, the focus has now decisively shifted to establishing infrastructures of sampling, testing, detection and verification of GMOs in the bulk commodity trade. Such “infrastructures of transparency” appear necessary, first, to augment limited information currently disclosed; and second, to verify accuracy of disclosed information (and such an imperative exists no matter how much information is disclosed—thus it will not lessen with provision of more information). For these reasons, systems and practices of sampling, testing and verification are becoming fixtures of governance of disclosure in this domain.<sup>30</sup>

As a synthesis of country experiences makes clear, in recent years an entire infrastructure of sampling, testing, and verification for GMO transfers is indeed emerging globally.<sup>31</sup> For each of these components, complex, contested and uncertain issues arise. For example, detection of GM content in food, feed and in processed products looks set to become a key site where battles of knowing and disclosing (and biosafety governance) are likely to be fought—notwithstanding the image it evokes of an esoteric and technically complex activity conducted by neutral scientists toiling in obscure laboratories. Its politically contested nature is evident from an emerging transatlantic divide: two detection methods dominate current GM testing, with one favored by the US and the other by the EU. The US preferred method, protein testing, is relatively easy, cheap and quick but imprecise; the EU preferred method, DNA testing, is technically complex, expensive and time-consuming but yields more precise results.<sup>32</sup> Which of these is endorsed as an appropriate (or adequate) method of detection is a key political issue, given varying costs and consequences for exporters and importers in the agricultural commodity trade.

Further complicating matters is the question of what “truths” are revealed by sampling, testing and detection, i.e. reliability of information obtained via testing. In discussing costs and technical challenges associated with GMO testing, Kalaitzandonakes notes that, since GMO testing is

a statistical process, repeated sampling and testing of the very same cargo [can] regularly produce different results. There are several sources of variance in test results, including differences in testing and sampling methods as well as testing error. Testing methods can vary appreciably across labs (. . .) conflicting test results could occur even if identical lab testing protocols are used, unless the same sample is tested. Depending on the concentration and distribution of a particular LMO [living modified organism] in a particular lot and how it was sampled, it could be difficult, if not impossible, to dupli-

30. Importantly, this need for testing now extends to producers of non-GM foods, including organic agriculture, to prevent contamination with GM crops. See Ceres undated.

31. CBD 2008.

32. CBD 2008, 11; and Holst-Jensen undated.

cate any set of test results. Finally, some assay [sampling] error (e.g. false positive or false negative test results) will always exist.<sup>33</sup>

With variations in test results and the specter of false positives and false negatives hanging over such results, there can be significant economic consequences for all involved with a testing and verification regime, depending upon how liability for error is distributed. Whose testing regimen is “sound” and whose knowledge is reliable are key sites of conflict, which science alone cannot resolve.

Debates within the Protocol have thus also focused on standardization of various elements of such infrastructures of transparency, such as standardized sampling techniques, detection methods, and testing protocols.<sup>34</sup> This also appears to be a looming battleground in biosafety governance, as evident from the fact that the objectives pursued by standardization vary greatly. For GMO exporters, the goal is to avoid proliferating national standards and develop minimum agreed global standards, so as to reduce potential liability claims or economic harm resulting from diverging national practices or varying (unstandardized) test results. For GMO importers, such as the EU with its stringent regional labeling, thresholds and traceability requirements, the goal is global standards that reflect its preferred methods and approaches. An effort in the global food safety standard setting body, the Codex Alimentarius Commission, to achieve agreement on standardized testing and thresholds for GM food has been stalled for a while,<sup>35</sup> with similar debates now emerging in the context of the Protocol.

These infrastructures of transparency are thus complex, expensive, prone to error and a challenge to institutionalize on a global scale for GM varieties currently traded. Given this, what are the consequences of ever more varieties entering the market, especially where each contains not one or two genetic modification “events” but rather multiple “stacked events,” each of which may have to be tested for? So far, the norm is two or three stacked events in a given GMO variety, and these pose substantial challenges for testing and detection.<sup>36</sup> If we draw on analyses by transgenic crop advocates such as Clive James, a diligent chronicler of the “progress” made by such crops in the last decade, it would appear that we have only seen the tip of the iceberg with regard to stacked events. As an illustration of progress, James states in bold type in a recent study that

Smartstax™ is expected to be released in the USA in 2010 with eight different genes coding for several pest resistant and herbicide tolerant traits. Future

33. Kalaitzandonakes 2006, 24. Kalaitzandonakes analyzes in detail who might bear the costs of elaborate testing and verification for stringent disclosure obligations and consequences for agricultural trade.

34. CBD 2008.

35. Gruere 2006.

36. CBD 2008.

stacked crop products will comprise both agronomic input traits for pest resistance, tolerance to herbicides and drought plus [a variety of] output traits (. . .).<sup>37</sup>

Having to contend with this evokes science-fiction-like images of expanding testing, detection and verification systems struggling to cope, with the enormity of the task daunting in all respects (political, technical and economic).

This discussion highlights another crucial aspect relating to infrastructures of transparency: how these new and emerging loci of authority will function and who they will empower. Clearly, detection techniques can also be a powerful tool for civil society and others seeking information, as evident from recent StarLink and other controversies surrounding release of illegal GMO varieties and their transfer internationally. In these cases, it was not state-run systems of oversight that detected unauthorized GMOs in bulk shipments, but rather civil society efforts.<sup>38</sup> A key implication is that availability of simple detection techniques, developed to support the practices of governance by disclosure, and perhaps widely disseminated via the Protocol (through capacity building etc.), may well force further disclosure and voluntarily change market practices. This is especially the case given the possibility that easily detected illegal presence of GMOs may fuel liability claims and lost market access.

On the other hand, to detect presence of illegal and unapproved GMOs, information about what to test for is still necessary. Certain types of disclosure are thus required for a testing infrastructure itself to function. This includes reference materials and testing protocols for each GMO variety, information that testers need in order to know what to test for. Such information, however, is often seen as proprietary and not widely available.<sup>39</sup> Furthermore, as a CBD synthesis report notes, "detection of unauthorized or unknown GMOs [is often not possible] due to lack of molecular knowledge of their genetic contents."<sup>40</sup> This highlights that the empowerment potential of these infrastructures of transparency remains up for grabs.

The discussion above also points to complex links between disclosure, the burden of testing and future liability regimes. Liability discussions have been extremely contentious in these negotiations,<sup>41</sup> not only because of concerns over ecological or health-related damages resulting from GMO use, but also because liability rules may fundamentally alter incentive structures relating to scope and nature of information disclosure and testing and verification.

For example, once liability regimes are in place, less precise tests may no longer be an option, given the risk of being held liable for inaccurate information. But on whom the onus for greater accuracy will rest remains unclear. It might either shift the burden for testing onto exporting parties (the intent of

37. James 2008, 8.

38. Clapp 2008.

39. CBD 2008.

40. CBD 2008, 15.

41. CBD 2009; and Bled 2009.

those pushing for stringent liability in this context), or rather leave it on those who currently need to comply with protocol obligations, and ensure accuracy of their own stringent GMO labeling laws (mainly importing countries who are Parties to the Protocol). These intricate links between disclosure and liability are now increasingly coming to the fore.<sup>42</sup>

From the above discussion, two observations can be made. First, the growing need for sampling, testing and verification represents, in this domain as in many others, a “technicalization” of political conflict and creation of new epistemic authorities, where particular forms of expertise are privileged over others.<sup>43</sup> These new loci of authority have the potential to reshape existing power relationships, yet in what ways and how remains unclear. This is fundamentally related to who has the capacity and need to establish such infrastructures, as well as the power to shape associated practices and what Power calls “rituals of verification.”<sup>44</sup>

As Power notes, a key struggle is over competing claims to expertise. This is especially the case, he suggests, where

the nature of the market and the competences to operate in it are ill-defined and immature. In such circumstances, even the driest and most procedural elaboration (. . .) is not simply neutrally descriptive, it is part of a wider normative discourse which constructs and presents the field in ways which make it receptive to the claims of certain forms of expertise rather than another.<sup>45</sup>

This applies to the newly emerging “market” for GMO sampling, detection, testing, and verification infrastructures and practices as well. The relevance and functioning of governance by disclosure in this global realm will be shaped by these infrastructures of testing and verification and their architects, suggesting a new locus of conflict and power in this realm.

Second, the discussion above suggests that this entire direction in global biosafety governance (and governance by disclosure) has greater relevance for some than others. Establishing infrastructures of transparency is more feasible for the EU or Japan, New Zealand, Mexico and South Africa, where extensive efforts are underway.<sup>46</sup> It poses a far greater challenge for many developing countries, particularly in Africa. These countries thus continue to push for expanding the scope of disclosed information in order to shift the onus of responsibility for monitoring and testing onto exporting countries.<sup>47</sup>

With the current focus on infrastructures of disclosure, a clarion call for capacity building is also increasingly heard from all within this global governance context. Yet, as the discussion above implies, the capacity to ensure biosafety

42. This includes links between *domestic* liability regimes and global disclosure negotiations.

43. Jasanoff 1987; and Gupta 2004.

44. Power 1997a.

45. Power 1997b, 124.

46. CBD 2008; and Mayet undated.

47. ENB 2008.

and develop institutions and practices of sampling, testing and verification (and whose capacity is to be built by whom) cannot be separated from political struggles over *whose* practices are considered reliable, accurate and trustworthy.<sup>48</sup>

In concluding, I briefly consider the differing relevance of current disclosure obligations and practices for GMO importing countries, depending on varying domestic governance goals.

*Transparency: for Whom and Why?*

Drawing on the analysis above, I return here to a central aspect of governance by disclosure: transparency for whom and to what end? In particular, I consider who (among importing countries) most needs protocol-induced disclosure to meet biosafety governance aims. Within the category of importing countries, there are wide variations in existence and stringency of domestic biosafety laws. These distinctions influence whether disclosure can further varied normative, procedural and substantive governance aims in such countries. Key differences lie in whether domestic GMO laws exist; and where they do, what they call for. They might require only biosafety risk assessments, or also labeling of food with GMO ingredients, with varying threshold levels triggering such labeling (that may require more or less precise information). Most stringently, some laws may call for traceability of GMOs from farm to fork.<sup>49</sup>

Countries with the most stringent domestic regulations in place, such as those in the European Union, require detailed information disclosure as well as guaranteed traceability from exporting countries in order to implement domestic regulations. Yet these countries are precisely the ones who least need such disclosure to be globally-induced via the Protocol, since exporting countries have to automatically comply with such importing country regulations. This holds for all countries with domestic laws that require labeling of GM food or food containing GM ingredients, which includes countries like Brazil, China, New Zealand, Mexico and Japan.<sup>50</sup>

It is countries with no domestic regulatory frameworks, mostly developing countries in Africa or elsewhere, or those where such frameworks are only now being developed, that globally-induced disclosure through the Protocol (and its scope) is of greatest relevance. This is because it is the only available avenue through which to impose disclosure on exporting countries. For these countries, the main goal is one of a right to know (as much as feasible), rather than implementing stringent labeling or traceability, particularly given the low prospects for achieving domestic segregation and co-existence of GM and non-GM agricultural systems.<sup>51</sup>

48. For a first analysis of the UNEP-GEF capacity building project operating in developing countries to facilitate BCH disclosure, see Gupta 2010a.

49. See Gruere 2006 and Zepeda 2006 for details of domestic GMO laws, also in the South.

50. See Gruere 2006; and Zepeda 2006.

51. On this point, Sahai undated.

For these countries, the central consideration remains whether protocol-induced disclosure can shift the burden to exporting countries to sufficiently inform importing countries of impending GMO transfers, and their goal all along has been to engineer such a shift. As explored earlier, however, a “may contain” disclosure requirement does not accomplish this, with the emphasis now shifting to sampling, testing, and verification in order to either generate additional and/or put limited disclosed information to use.

This raises the question whether governance by disclosure (and its associated testing, segregation, identity preservation and coexistence approach to biosafety) is even a suitable choice in this area, and for whom. With the huge challenges it poses for the poorest developing countries, and in the absence of specific and stringent disclosure via the Protocol, many such countries have chosen to impose bans or moratoria on entry of GMOs. Arguably, this is simpler and quicker than developing domestic biosafety laws and an easy way to shift the burden to exporters to comply with such a ban, while removing the need to set up elaborate infrastructures of testing and verification to detect presence of specific GMOs in incoming shipments. Countries with a ban on imports of GMOs (in food aid or as unprocessed grain) include Algeria, Angola, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Sudan, Swaziland, Zambia and Zimbabwe.<sup>52</sup> It is also striking—but supports the argument here—that many bans are recent, notwithstanding the Cartagena Protocol and its disclosure obligations.

Another compelling imperative to institute bans is that, for many of the poorest countries, GMO governance is related not (only) to labeling, consumer choice or food safety, but to the essential need for continued access to EU and other markets for non-GM traditional agricultural exports that may be threatened by inadvertent co-mingling with GM varieties. Since, as industry advocates for GM crops argue, co-mingling is a technical and political reality in the current marketplace and segregation is very costly, it is difficult to simultaneously argue that segregation (as a way to secure non-GM markets) will be a feasible option for poorer countries.<sup>53</sup>

The above discussion makes clear that disclosure has differing relevance for different importing countries, highlighting that “transparency for whom” remains a central issue in assessing governance by disclosure. The analysis suggests that globally-induced disclosure is most needed by those with the least capacity to develop domestic regulations and hence to inform themselves via such a route. For these countries, a key imperative is to globalize “a right to be told” rather than simply a “right to know” (because with the latter alone, the burden of testing and verification may not be shifted to those disclosing information).<sup>54</sup>

52. Zepeda 2006, 1206.

53. For analysis of how “biotechnology for the poor” rhetoric can impact biosafety frameworks in the South, see Jansen and Gupta 2009.

54. This does not yet address a logical follow-up question: even if these countries had all the infor-

## Conclusion: Transparency's Transformative Potential?

In concluding, I return to the question of transparency's transformative potential and the prospects for governance by disclosure to meet various normative, procedural and substantive ends. As I have argued above, the Cartagena Protocol's disclosure obligations and practices relating to the agricultural commodity trade ensure that, rather than institutionalizing a normative right to know and choose, a dictum of *caveat emptor* prevails instead. Furthermore, in the absence of supportive domestic regulations, such disclosure leaves the onus upon importing countries to detect, verify and make useable disclosed information, and to do so by putting into place complex infrastructures of monitoring, detecting and verification.

Debates in the global context have now shifted to standardization of sampling criteria, appropriate detection methods, and availability of testing protocols. These debates reflect divergent EU-US approaches to detection and testing, and broader disputes over facilitating trade versus meeting stringent domestic labeling and traceability laws. Disclosure in the Cartagena Protocol, particularly relating to the GMO commodity trade, is thus yet another global arena where these transatlantic conflicts play out.

Neither facilitating GMO trade nor implementing stringent labeling and traceability requirements is a compelling imperative yet for the vast majority of the South. For these countries, the driving imperative remains shifting the burden of providing information and soliciting consent with regard to incoming GMO varieties to exporters. In the absence of this, they have to contend with a *caveat emptor* status quo. In response, some have instituted moratoria or bans, partly because of the technical complexity and enormous costs of alternative routes such as stringent labeling and traceability (the path taken by the EU) and related efforts to realize co-existence of conventional, GM and organic agriculture.<sup>55</sup> With this, however, the compromise of prior informed consent (to prevent the two extremes of *caveat emptor* or outright bans) fails to take effect.

Transparency arguably fails to fulfill its transformative potential here. Where, then, does that leave governance by disclosure and its potential to empower? In analyzing how disclosure is working (and where it is failing), my argument here is not that the Cartagena Protocol is irrelevant. Indeed, it has had a range of desired effects, including general awareness-raising, as well as empowering domestic constituencies supportive of biosafety concerns and the precautionary principle relating to GMO crop use.<sup>56</sup> As it currently stands, however, its disclosure obligations benefit least those who might need them the most. In contrast to an impetus for disclosure grounded in the normative demand of

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mation they desire at their disposal, a disclosure approach to biosafety may not secure their governance aims in this area. This point is addressed further in the introduction to this special issue.

55. It is not only poor countries who resort to bans. The EU imposed a *de facto* moratorium on GM imports from 1998–2004 until its stringent regulations were in place. See Gruere 2006.

56. Falkner and Gupta 2009.

some of the poorest countries to be informed about GMO transfers, it is these countries that are left by the wayside in complex discussions about detection and thresholds that now dominate in this global governance arena.

Two alternative lines of argument can be entertained in considering future prospects for governance by disclosure. First, the critical perspective adopted here would imply that transparency—like all other governance norms and mechanisms—will inevitably mirror broader meta-normative and political economic conflicts, and will acquire meaning and relevance in this broader context.<sup>57</sup> In such a view, since transparency is itself an arena for articulation of such broader conflicts, it cannot simultaneously offer the means by which to transcend them. If so, a transformative role for transparency is perhaps too much to hope for.

A second perspective sees the possibility of a more dialectical relationship between transparency and the larger political-normative context within which it is embedded. In such a view, transparency is not only shaped by the meta-normative and political context but also has the ability to shape it in turn.<sup>58</sup> If so, the prospects for empowerment through transparency remain alive, since global norms evolve and are mutable.<sup>59</sup> For such a perspective, a key analytical challenge remains to illustrate conditions under which transparency can indeed be transformative.

With regard to GMO governance, a striking veil of unknowability hangs over future normative and political developments. Given the anticipatory nature of this governance challenge, it is not clear how markets for GM and non-GM crops will develop, which crops will be approved and win acceptance (or not) in key markets, how norms of risk and choice will evolve, and who will be empowered by emerging systems and practices of testing, sampling and verification. Thus, even if *caveat emptor* currently prevails, the shifting normative and political context within which it does so ensures its precarious status. What follows in its wake is not a foregone conclusion. It is clear, however, is that transparency and disclosure will, for better or worse, become an ever more important battleground in global risk governance.

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58. Mol 2006; see also Mol 2010.
59. Florini 2008.

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