

Information Disclosure and Environmental Regulation: Green Lights and Grey Areas

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ABSTRACT

This research examines the potential of information disclosure for environmental regulation. The research attempts to answer questions of what impact information disclosure has on corporate environmental practices and what interferes with its effective use. A case study of Indonesia's pioneering informational environmental regulation reveals; 1) both indirect (for example, anticipation of external pressure) and direct (for example, internal learning support) informational effects that enhance environmental awareness at the top management level and stimulate changes in production processes; and 2) detrimental effects of disclosed information that maintain or strengthen the extant power of regulated firms over environmental groups and local communities affected. Regulatory efforts can be leveraged by public disclosure of information regarding firms' environmental performance, especially where the state monitoring and enforcement capacities are weak. However, introduction of policies of this kind without considering different market conditions and political/administrative culture may impede the effectiveness of this potentially useful regulatory method.

Keywords: Information disclosure, environmental regulation, Indonesia, market conditions, political/administrative culture

Introduction

Let us imagine a fast-growing developing country in which; economic development tops the national agenda; major firms in key industries that lead economic growth are directly owned or indirectly controlled by powerful politicians and military figures contributing to politico-economic collusion; those industries are pollution-intensive; despite the presence of *de jure* regulatory requirements, *de facto* enforcement is nearly absent; and immature democratic tradition impedes public scrutiny of polluting firms linked to politico-economic power wielders. Given this situation, would it not be surprising if a growing number of firms complied with the environmental regulatory standards?

Indonesia shares much in common with the aforementioned imaginary country. Sponsored by the World Bank and United States Agency for International Development, Indonesia launched in 1995 a pioneering environmental regulatory program commonly known as the Program for Pollution Control, Evaluation and Rating (PROPER). It was the first and most extensive pollution information disclosure policy administered in the context of developing countries. The early returns suggest that PROPER led participating firms to voluntary efforts that reduced emissions far more quickly and efficiently than any mandatory regulation (Blackman *et al.* 2004). Yet despite claims of success, PROPER has received little analysis to date.

Although environmental regulators worldwide are increasingly embracing the method of information disclosure as a promising regulatory tool, we still know little about how it motivates firms to engage in voluntary emissions reduction (Fung *et al.* 2007; Mol 2008). There is uncertainty over the institutional structures relating to the veracity of information and technological/managerial innovation to move beyond compliance. As is often the case with other policy areas, we cannot assume that the initial success of PROPER is transferable to another

program under different circumstances. Disclosure systems may operate in ways that deliver minimal changes or do not achieve much of anything, and only serve as a tool for symbolic governance (Coglianese *et al.* 2009; Florini 2008). If we are to devise more effective environmental regulation, the analytic insights into the role of information disclosed, as a key explanatory as well as normative concern, should be provided (Braithwaite *et al.* 2007).

To address the above concern, the research reported here asks, “what impact does pollution information disclosure have on corporate environmental practices and what interferes with its effective use?” Although the empirical focus of this research is strictly on PROPER, the findings have theoretical value for informational environmental regulation more generally.

Very briefly, we find; 1) both indirect (for example, anticipation of external pressure, but not actual pressures) and direct (for example, internal learning support) informational effects that enhance environmental awareness at the top management level and stimulate changes in production processes in environment-friendly manners; and more notably, 2) detrimental effects of disclosed information that maintain or strengthen the extant power of regulated firms over environmental groups and local communities affected. The second aspect of the findings is quite contrary to the theoretical anticipation derived from early literature on regulatory disclosure. It is a cautious reminder that this “third wave” of environmental regulation (Tietenberg 1998) is not a panacea but, rather, susceptible to manipulation by political whim. These findings provide a more nuanced assessment of information disclosure effects than much of the extant literature.

Drawing on the research findings, we engage the discussion in a broader scholarly debate over the potential of regulatory disclosure initiatives by illuminating the promise and perils of relying on this scheme as a tool for environmental governance. Our main contribution is twofold. One is an unpacking of the complicated effects of disclosed information on environmental

decision-making by different groups of stakeholders. The other is an understanding of the mechanism through which information disclosure can exacerbate inequalities. The latter signifies the public trust in government agencies which is widely recognized as crucial for successful policy implementation but not readily addressed by regulatory disclosure literature. Overall, we argue that the key to promoting the effectiveness of informational environmental regulation lies not only in the quality of information *per se* but also the degree to which disclosed information is integrated into decision-making processes of intended beneficiaries and regulated entities.

In no way do we wish to discount the value of the findings in previous studies on this subject. Rather, the research reported here aims to push explanation a little further to grasp conditions under which informational environmental regulation can work better.

THEORETICAL UNDERPINNINGS: CHANNELS OF INFORMATION DISCLOSURE EFFECTS

In the past two decades or so, regulatory scholars with an empirical as well as theoretical interest in the economics and politics of mandatory information disclosure have attempted to explain why, and how, disclosure programs work. Although research on this subject remains limited in scope and the evidence is fragmentary, extant studies hint at the working mechanisms of information disclosure policies. Among them, Fung *et al.*'s (2007) recent work provides a concise but encompassing framework for assessing the effectiveness of regulatory disclosure.

They argue that information disclosure policies can be highly effective *only* when the information becomes “embedded” in the everyday decision-making routines of stakeholders. While other studies have paid primary attention to either information holders or users as to how disclosed information affects their respective behavior, Fung *et al.*'s (2007) framework addresses

the importance of dual embeddedness pertaining to the utility of the information to disclosers (discloser embeddedness) as well as to users (user embeddedness). Though not made explicit in their discussion, the idea of dual embeddedness suggests that awareness of a broader politico-economic context is necessary to identify channels through which disclosed information influences corporate environmental behavior, as we shall see later (Mason 2008).

For the sake of systematic discussion of our analytic foci, we categorize scattered empirical findings in a variety of related disciplines into the two aforementioned analytic criteria, that is, user embeddedness and discloser embeddedness, according to their main arguments.

User Embeddedness

The term user embeddedness refers to the “degree to which information that is mandated in a disclosure system is integrated into the decision-making processes of a policy’s intended users” (Weil *et al.* 2006, p. 159). Arguably, the most obvious manifestations of user embeddedness delineated in the existing assessments of informational regulation are *market forces* and *community empowerment*.

Market forces

The economic literature on informational environmental regulation has focused largely on whether and how capital markets respond to public disclosure of firms’ pollution information. The first empirical study of this kind was conducted by Shane and Spicer (1983) even before the implementation of mandatory information disclosure policies. They found that returns for bad environmental performers were significantly lower than those for good performers once the relevant information was disclosed to investors. Consistent with Shane and Spicer’s finding,

Hamilton (1995) showed upward trends in firms' stock value when information revealed good environmental performance and downward trends when performance was poor. Konar and Cohen's (1997) study also found that firms that polluted more faced greater declines in stock value as Toxics Release Inventory (TRI) information was made public. In line with those classic studies, a growing body of research in the context of advanced economies discovered that capital markets react to firms' environmental performance and create incentives for pollution abatement (Alberini & Segerson 2002; Boardman *et al.* 1998; Konar & Cohen 2001; Lanoie *et al.* 1998).

Researchers have further investigated whether the findings in the above studies can be generalized in the context of developing countries where capital markets are considered much less efficient than those in developed countries, and thereby not expected to react to new information in the same way. Two empirical studies are noteworthy in this regard. Dasgupta and Laplante's (2001) research showed that capital markets in Argentina, Chile, Mexico, and the Philippines rewarded superior environmental performers (that is, increases in firms' market values) and penalized bad performers upon the disclosure of environmental news. In a similar vein, research by Gupta and Goldar (2005), in studying the effects of environmental information about Indian automobile, pulp and paper, and chlor alkali firms on their stock prices, revealed that unfavorable environmental news was associated with significant decreases in stock prices. In sum, these studies lend credence to a view that even in developing countries, capital markets respond significantly to disclosure of firms' pollution information.

In addition to the reactions of the capital market, 'green consumers' are recognized as another important market force. This view posits that disclosed pollution information stimulates consumers' environmental consciousness and steers their decision to purchase one product over another. It, in turn, affects firms' decisions with environmental implications. Arora and

Gangopadhyay (1995) and Khanna and Damon (1999) support a green consumer thesis by demonstrating that when making business decisions, firms consider the cost of bad information, that is, the loss of green consumers.

However, the market forces of disclosed information can work only where investors and consumers are socially responsible. Would it, then, be possible for emissions reduction to occur in the absence of these market forces? A group of scholars has responded to this inquiry and shown that emissions reduction is attributable to community empowerment through information disclosure. This is also a recurring theme in the literature on informational regulation.

Community empowerment

Environmental sociologists have long argued that pollution is the result of power disparity generated by information asymmetry between polluting firms and surrounding local communities (Grant II 1997). In a similar vein, environmental economists assert that information asymmetry is a major barrier to Coasian bargaining to reach socially optimal risk sharing (Pargal & Wheeler 1996). They assert that information disclosure policies have great potential to facilitate such bargaining by correcting the problem of environmental information asymmetry at acceptable costs (Maxwell *et al.* 2000).

Both groups of scholars focus on pressure from those who are directly affected by emissions. Public information disclosure is acclaimed as helping affected communities access new pollution information previously unavailable to them and it, in turn, helps them correct for the externalities of industrial activity (Coglianese & Kagan 2007). When armed with reliable information, the citizens become more proactive and play the role of informal regulators by

putting pressure on polluting firms to reduce emissions where formal regulators are weak (Arora & Cason 1999; Grant II 1997).

Though an attractive argument, we notice that empowerment through information disclosure is in no way automatic and that the emergence of informal regulation depends on the characteristics of affected communities. There exists literature demonstrating that information disclosure does not necessarily alter the behavior of the people affected since they vary in respect to their interest in the disclosed information, opportunity costs, and heuristics to process and interpret the information, and thereby their ability to engage in collective environmental action. (Arora & Cason 1999; Earnhart 2004; Pargal & Wheeler 1996). We suggest that information disclosure policies, if not information disclosure *per se*, can be a double-edged sword. Depending on information users' trust in regulatory institution and perceived legitimacy of the information, those policies can either empower communities or deprive them of opportunities for collective action.

Discloser Embeddedness: Internal Learning

Analogous to the notion of user embeddedness, discloser embeddedness can be construed as the “degree to which information in a disclosure system is integrated into the decision-making processes of a policy’s targeted organizations that hold private information to be disclosed.” When explaining the significance of discloser embeddedness, Fung *et al.* (2007) emphasize disclosers’ reliance on responses to new information by users whose subsequent actions create incentives for disclosers. This account of discloser embeddedness presupposes the first move being made by users.

Although we concur with Fung *et al.*'s emphasis on the importance of discloser embeddedness, firms' motivations for changing conduct may be independent of information users' response to the disclosed information. As we shall see later, for example, firms may not face actual external pressures from investors, green consumers or communities, but still make efforts to improve environmental performance. We notice that 'organizational failure' (Gabel & Sinclair-Desgagné 1993) resulting from the lack of relevant information is often responsible for firms' wrong assessments of production processes and environmental damage. When preparing the data to be disclosed and reported to formal regulators, disclosers may recognize or review opportunities for operational changes to reduce emissions (Grabosky 1995). On this account, information disclosure facilitates changes in firm behavior through self-audits and self-created incentives (O'Rourke & Lee 2004). As such, we factor in *internal learning* as a promising way for the information to become part of disclosers' decision-making process.

Of relevance to the above point is Lanou and Law's (1999) study of toxics use reduction undertaken by the Massachusetts printed wiring board industry. In the process of preparing toxics use reduction plans reported to the state environmental agency, firms recognized that there were benefits from designing and conducting materials balances. It motivated firms to develop systematic procedures for tracking and reducing chemical use. Consistent with Lanou and Laws' argument, O'Rourke and Lee (2004) found that periodic disclosure and reporting on chemical use to the environmental agency increased management attention to environmental issues. It helped firms re-evaluate their production processes and spurred them to implement toxics use reduction plans even in the absence of external pressures.

While a disproportionately large amount of empirical studies have identified external pressures as major sources of emissions reduction efforts, scant attention has been paid to

internal learning to improve firms' environmental management (for an exception, see Blackman *et al.* 2004). We are particularly interested in this variable, which is relatively overlooked in the literature on informational environmental regulation despite its theoretical importance. Assuming that firms are profit maximizers, internal learning may be more relevant to firms' environmental decision-making than other factors if it can provide opportunities for reducing operational costs (Thornton *et al.* 2008).

CASE SELECTION AND RESEARCH METHODS

In order to answer the research question posed at the outset (that is, what makes information disclosure policies work and what interferes with their effectiveness), we conducted a case study of Indonesia's pioneering regulatory disclosure program entitled PROPER. The case study employed theory-based sampling (Miles & Huberman 1994). That is, the case was not randomly selected but deliberately chosen to test the validities of the aforementioned theoretical claims. To date, an overwhelming majority of empirical studies on informational environmental regulation have focused on the U.S. TRI, whereas there is a paucity of reference to cases of the developing world. Presumably, this research trend is partly because TRI was the first informational environmental regulation in the world and mainly because it had reliable data to analyze – for example, detailed emission levels, census data, and longitudinal data on stock values for firms under investigation through which to test the program's effectiveness.

We have chosen to study the Indonesian case for a similar reason. As mentioned before, PROPER is the first informational environmental regulation administered in the developing world. It features several empirical studies and is relatively mature compared to similar policies in other developing countries (for example, the Philippines, India, Vietnam, Colombia, Mexico,

and China). Although the scope and depth of the data are not comparable to those of TRI, PROPER has accumulated data on the environmental performance of participating firms. Investigation of this program is expected to contribute to testing the generalizability of theories of informational environmental regulation.

We began by examining websites, press releases and technical reports provided by the Indonesian environmental agency to see whether PROPER has lived up to its promise. We then compared the agency-generated information with the same kind of materials (that is, websites, press releases, technical reports) released by industries and NGOs. In the process, we found notable disparity in the evaluation and perceptions of PROPER among different stakeholders.

To identify sources of this disparity, we conducted participant observation and in-depth interviews with the agency staff members, firm managers, representatives of industry associations, and environmental groups. We carried out open-ended, semi-structured face-to-face and email interviews with multiple stakeholders from April 2009 through July 2010. The eighteen participating firms were all medium to large enterprises employing between a hundred to more than ten thousand staff. The industry sectors represented were mining (5 firms), cement (4 firms), chemicals (5 firms), pulp and paper (2 firms), and electricity generation (2 firms). Interviews were also conducted with representatives from seven environmental NGOs and four present or former members of the environmental agency.

The responses to interview questions were coded systematically in order to confirm that noticeable discrepancies manifest in written materials actually reflected the opinions of the respective groups of interviewees in aggregate. Details of the coded interview data are presented in narrative form to provide readers with a vivid portrait of what has been happening “on the ground” (Mandelbaum 1991).

OVERVIEW OF PROPER

With relative depth of expertise in water pollution control obtained through Program Kali Bersih (PROKASIH or the Clean River Program) between 1989 and 1994, the environmental agency launched a new informational environmental regulation named PROPER in 1995. The primary target participants of PROPER were firms that had a large environmental impact or potential impact on selected rivers. Although participation in PROPER was mandatory for those firms selected by the agency, voluntary participation was also possible. This new informational regulation was suspended in 1998 “due to the Asian financial crisis and the political upheaval surrounding the fall of the Suharto regime” (Personal correspondence with Laksmi Murdiono, a former agency staff member), but was revived in 2002.

Although fulcrums against which the program can leverage environmental information remain the same, the first (1995-1998) and second phase (from 2002 on) of PROPER are not directly comparable regarding their respective regulatory performance since the requirements of the second phase PROPER have been expanded in scope and depth to a considerable degree. Our discussion here focuses only on the second phase PROPER currently being implemented but having received no empirical analysis.

Environmental Performance Evaluation System

When PROPER was re-introduced in 2002, the Ministry of Environment (MOE) reinvented it rather than simply replicate its predecessor. Whereas the first phase PROPER only rated firms' compliance with effluent discharge standards, the second phase PROPER was even more ambitious. It took a multimedia approach and required firms to disclose information about

water/marine pollution, air pollution, hazardous/toxic waste management, and environmental impact assessment implementation. At the same time, the program aimed to promote “beyond-compliance” and required information reporting in three additional areas, namely; resource management or clean production, environmental management systems, and community relations/community development. Admittedly, the second phase of PROPER is more encompassing than any informational environmental regulation in other countries.

The most salient feature that distinguishes PROPER from other informational environmental programs lies in a unique system of evaluating and disclosing firms’ environmental performance. From the perspective of the agency, full disclosure of raw data could cause interpretation problems on the part of the general public whereas a traditional binary evaluation system (compliance versus noncompliance) was too limited to encourage firms to move beyond mandated levels.

Thus, PROPER employed a five-color rating system in which firms are assigned a color corresponding to the various levels of environmental performance – Gold, Green, Blue, Red, and Black: Firms whose performance meets or exceeds the minimum pollution standards and fulfills the criteria in the three additional areas receive Gold or Green ratings, depending on the degree of excellence (beyond-compliance); firms that merely meet the standards receive a Blue rating (compliance); while firms that fail to meet the standards are given Red or Black ratings (noncompliance). It was intended that Gold and Green ratings would provide reputation incentives and rewards from stakeholders, and that Red or Black ratings would trigger pressures from stakeholders (MOE 2007, p. 12-13). These color ratings are the only information to be disclosed to the general public.

In 2006, adjustments were made to the rating system with the introduction of two new additional categories: Blue Minus and Red Minus. The rationale for these new categories was to provide greater recognition for firms that had invested resources to make improvements but still failed to fully meet the standards required to move from Black to Red or from Red to Blue. Under the revised rating system, some firms that would formerly have received a noncompliant Red rating could instead be awarded a “nearly compliant” Blue Minus rating.

Performance of PROPER: Official Claims versus Independent Analysis

The longitudinal PROPER data between the periods of 2002-2003 and 2008-2009 show that the compliance results are open to complicated interpretations. Figure 1 gives the official compliance results since 2002 as presented by the Ministry of Environment in the PROPER press release.

[Insert Figure 1 here]

After the introduction of the two new categories (that is, Blue Minus and Red Minus) in 2006, the agency claimed that compliance rates increased dramatically. However, we should be cautious when interpreting the compliance outcomes since 2006. If we disintegrate participants’ environmental performance according to color ratings, some confusion is apparent due to the introduction of the two new color categories, that is, Blue Minus and Red Minus (see Table 1).

[Insert Table 1 here]

Initially, 85 firms were given unpublicized tentative ratings by the agency in 2002. Noncompliant firms (Red or Black initial ratings) were given 6 months to improve their performance. The results of the reassessment of the 85 firms showed significant increase in compliance (Blue or above) from 33 percent to 69 percent.

In the following assessment for the period of 2003-2004, 251 firms were given ratings. This number includes 81 firms out of the 85 original participants, excluding the 4 firms which were closed for unknown reasons. The overall compliance rate was 49 percent. The agency claims that the decline in compliance was due to new participants. We found no changes in compliance levels among the 81 original participants we were able to identify as rated in both periods of 2002-2003 (70 percent) and 2003-2004 (70 percent), although the number of Green-rated firms dropped slightly from 8 to 7.

When 466 firms were rated for the period of 2004-2005, the overall compliance rate only showed a slight increase from 49 percent to 52 percent (see Figure 1). However, among the 246 firms that were also rated in the previous assessment, compliance rose from 50 percent to 64 percent. Meanwhile, the compliance rate of the original 81 participants from the period of 2002-2003 rose from 70 percent to 75 percent (see Figures 2 and 3).

[Insert Figures 2 and 3 here]

Compliance rates after 2004-2005 vary greatly depending on whether we include the 156 and 229 Blue Minus firms in 2006-2007 and in 2008-2009, respectively. While the agency publicly characterized Blue Minus as compliant, it concedes that firms with a Blue Minus rating are actually noncompliant by definition (nearly compliant). If compliance is measured only by Blue, Green and Gold ratings, then overall compliance in fact dropped to 46 percent in 2006-2007 and 34 percent in 2008-2009.

Falling compliance levels (Blue and above) are also found among the 466 participants from 2004-2005, to 46 percent in 2006-2007 (426 firms identified) and 40 percent in 2008-2009 (387 firms identified) (see Figure 4). Nevertheless, the number of firms rated beyond-compliance

in this group almost doubled in 2006-2007, up to 46 Greens and 1 Gold rating from 23 Green ratings in 2004-2005 (see Table 1).

[Insert Figure 4 here]

Comparison of results before and from 2006-2007 is complicated by the fact that the Blue Minus rating appears to straddle the old Blue and Red ratings. The agency explains that the drop in the proportion of Blue rated firms in 2006-2007 does not necessarily reflect a drop in performance in real terms because after Blue Minus was introduced, the Blue rating was applied more stringently. That is, some firms with a Blue Minus rating would have been rated Blue by the standards applied before 2006. At the same time, it is claimed that a Blue Minus category can push “nearly compliant” firms to take one step further to achieve full compliance by conveying the message, “You’re almost there” while avoiding the “Bad Guy” label associated with a Red rating. In the eyes of environmental groups, however, the issuance of a Blue Minus rating is like the abuses of indulgences and they see firms given carrots when they deserve sticks.

We conclude that there is considerable difficulty in using the ratings to measure the efficacy of PROPER after 2006 due to the change in the number of categories and agency claims of increasing stringency. When we deconstruct the official data, as shown in Figures 2, 3 and 4, PROPER’s regulatory performance seems less effective than publicized. By publicly categorizing the Blue Minus rating as compliant and claiming dramatic increases in compliance after 2007, while the opposite was arguably true, the agency is open to accusations of “greenwashing” from NGOs. However, the fact that less Blue and Green ratings were awarded in the latest rounds may indicate that inspectors are becoming more stringent and the ratings themselves are becoming more reliable.

Despite positive early returns, our analysis here indicates the limitations of relying upon the public ratings to measure the program's success to date, particularly when we are unable to verify the PROPER ratings with the original raw data, as discussed below. We have therefore chosen to focus on the independent, qualitative evidence obtained by this research to examine how PROPER affects the external context and internal procedures of participating firms.

DISENTANGLING THE EFFECTS OF INFORMATION DISCLOSURE

The analyses presented here aim to unpack the influences of PROPER in motivating firms to engage in voluntary emissions reduction activities. The agency staff asserted that PROPER is the single most successful environmental program in the history of the Ministry of Environment. However, simply accepting the agency evaluation according to their own terms of reference may risk ignoring the program's "dependence on political authority which fundamentally decides on information access entitlements and opportunities" (Mason 2008, p. 9).

To address this concern, we investigated how other major stakeholders evaluate the effects of PROPER. Table 2 shows discrepancies between the groups of interviewees in their perceptions of the effectiveness of PROPER.

[Insert Table 2 here]

Briefly, participating firms view PROPER as useful in helping to advance corporate environmental management whereas environmental groups regard it as a tool for "greenwashing", to employ their vocabulary. Our own evaluation based on interviews and participant observation reveals that information generated by PROPER has not yet been successfully embedded in the decision-making processes of intended information users. In other words, the program is yet to engender adequate market forces and community empowerment.

Contrary to the expectations drawn from the burgeoning literature, we found little evidence proving actual functioning of capital market reactions and consumer pressure. We also discovered partial evidence that the current policy design poses a barrier to affected communities' collective environmental action against polluters. It must be noted here that these findings do not deny the potential of the market forces and emancipatory function of environmental information disclosed. To some extent, publicizing PROPER ratings made participating firms concerned about their reputation and exerted indirect influences on corporate decisions with environmental implications. That is, PROPER helps participants anticipate future reactions from the financial market and the general public if the country becomes more democratized.

Meanwhile, we observed a relatively high degree of discloser embeddedness independent of external pressures. PROPER information plays a positive role in increasing firms' awareness of how they can benefit from environmental management. It implies that information disclosure policies can make corporate environmental governance more efficient even in the absence of any real shift in power structure (Florini 2008, p. 14).

Limited User Embeddedness of PROPER

PROPER has not yet triggered environmentally-oriented market forces

Although a rigorous way to examine how the capital market has reacted to the disclosure of PROPER ratings may be an event study analyzing the statistical significance of abnormal returns on the day of the event (in our case, the release of PROPER ratings), our sample size was too small to gauge statistically meaningful results. Instead, we asked managers directly whether and how PROPER ratings have affected their stock values and whether disclosure of good ratings has

contributed to attracting financial investment in the firm. Of eighteen interviewees, only one responded “I honestly don’t have any clue, but it seems unlikely.” The rest of the responses clearly indicated, “Not yet.” A top manager of a mining firm who requested anonymity recalled:

Some years ago, many companies in the mining industry received a red or black rating.

But their stock prices were not affected [by the ratings]. On the contrary, at that time, commodities prices were going up, so their stock prices were rising with them...

Normally, investors consider multiple factors, not just the PROPER ratings. Stock values are more affected by commodity prices and profits than the ratings.

Despite the limited data, a nearly unanimous response from the firm managers convinces us to believe that investor reaction to the release of PROPER ratings has been insignificant, at least until now. This inference is supported by the prior study by Hamilton (1995) delving into the stock market reactions to the TRI information. Hamilton (1995) found that the magnitude of the decrease in stock value for the firms that were already well known as polluters was relatively small. He explained that those firms were expected to have high emissions, and thus the released information of their environmental performance was not new and less likely to receive investor attention. Indeed, a majority of PROPER firms (and our respondents, too) fall into traditional polluting sectors (such as mining, crude oil production, power plants and the chemical industry) whose environmental performance may not trigger a surprise.

We found no supportive evidence regarding the green consumer thesis, either. We received a unanimous response from both firms and NGOs agreeing that green consumers have no effect on firms’ environmental behaviour. For example, one manager observed:

We conducted some research into biodegradable materials but our customers were not interested because it is more expensive. Unlike in the U.S. and Europe, price is more

important for consumers here (Personal correspondence with an environmental manager of a petrochemical company).

An NGO representative concurred with the above view.

To be honest, it [firms' environmental performance] has no correlation with consumer pressure... Consumers in Indonesia prefer cheaper products even though they are not environmentally friendly (Personal correspondence with Tori Kuswardono, Bio-fuel campaigner for Friends of the Earth Indonesia).

Interviews are consistent with conventional wisdom that unless directly affected by industrial pollution, consumers in developing countries tend to be less environmentally conscious than their counterparts in developed countries, and thus environmental information disclosure alone rarely affects their consumption behaviour.

Nevertheless, none of the firm managers denied the potential for pressure from institutional investors. This might be evidenced by the Norwegian Government Pension Fund withdrawing about 20 million US dollars from the Freeport McMoran mine in West Papua in 2006 and 890 million US dollars from its joint venture partner Rio Tinto in 2008 on the grounds of serious environmental damage caused by riverine tailings (waste material from ore processing) disposal. The manager of Antam, a Green rated company in 2006-2007, commented:

When looking into the future, more and more environmental requirements will be embraced by financial institutions. Some are already reflected by big international banks and later on I think Indonesian banks will follow the same path... We have been trying to be proactive by adjusting our operation to the OECD standards.

The comments from Wisnu Susetyo, chairperson of the Indonesian Mining Association (IMA)'s Environmental Committee, are in line with the above comments:

Some environmental leaders among the IMA members expect that in the near future, if not now, they will have questions from ethical investors and analysts... It's always good to be able to tell them, "We have participated in PROPER and we got a good rating"... It will influence the company evaluation by financial institutions, especially foreign investors because with a good PROPER performance, the company will be assessed as having a lower risk.

PROPER has failed to empower communities

Numerous official pronouncements have described PROPER as intended to bring about informal regulation by empowering the public. For example, Nabel Makarim, a founder of PROPER in 1995 and Minister of Environment at the time of reinventing PROPER in 2002 announced that:

When we started PROPER in 1995, it was because the legal process was not working. We thought, if the legal system cannot work, let's bring the enforcement back to the public (<http://www.usaep.org/yr1998/articles16.htm>).

However, a majority of the firm managers commented that they had not experienced any confrontation with local communities over environmental issues. None had observed any community actions in response to PROPER.

Meanwhile, environmental NGOs and community groups scorned official statements of "bringing the enforcement back to the public" and treated it as a tawdry political rhetoric with no real value. In responding to a straightforward question of how PROPER information has been utilized by communities or environmental groups, Luluk Uliyah, secretariat manager for Jaringan Advokasi Tambang (JATAM or the Mining Advocacy Network), commented:

It's not helpful for us. To the contrary, the information further empowers companies... When activists push for better performance, companies say, "Look at my certificate [PROPER rating]" and insist that they have been in compliance when the opposite is true. Even bad polluters are given good labels, which make our advocacy harder... The ratings have become a shield for companies to silence their critics.

A representative of another NGO concurred: "We haven't used PROPER ratings for advocacy... It hampers our actions to sue polluters." (Personal correspondence with Selamet Daroyni at Institute Hijau Indonesia).

Local communities' experiences with the mining industry hint at a possibility of public disempowerment. A number of fishing communities near mines claim to have suffered from decreases in a variety of marine species due to millions of tons of tailings being disposed of rivers and the sea. For instance, fishermen from the island of Sumbawa, close to Newmont's gold mining operations in West Nusa Tenggara, used to catch hundreds of thousands fish per day near the coast. They now complain that their income has decreased dramatically because of drops in catches and they have to go to sea for days to find fish. Farmers around mines also complain of water shortage and contamination. Both fishermen and farmers point to tailings from mines as the cause. Prior to the second phase of PROPER, the agency responded to the similar complaints and filed lawsuits against several mining firms. Some, if not all, cases reached settlement to compensate the communities for their loss.

More recently, residents in South Sulawesi raised concerns about the effects of submarine tailing disposal from Newmont's metals mining operations. Pollution became a hot local issue, resulting in a 2006 lawsuit by Wahana Lingkungan Hidup Indonesia (WALHI or Friends of the Earth Indonesia), Indonesia's largest and most influential environmental NGO uniting

approximately 470 small-scale environmental and community groups throughout the country's vast archipelago. Newmont presented to the court the fact that its other operation in West Nusa Tenggara was rated as beyond-compliance in the PROPER assessment. The court declared that the breach was not proved and WALHI lost the case. Teguh Surya, an executive of WALHI, considers that the firm's good PROPER rating was a major factor in the court decision and asserted, "WALHI considers PROPER as an obstacle to pushing companies to do the right thing." JATAM also claimed that PROPER weakens environmental enforcement. All interviewees, with no exception, from environmental NGOs and community groups shared the same view.

We do not mean to imply that there has been no community action against polluters. Indeed, prior studies on politics of industrial pollution in Indonesia have documented cases in which affected local communities mobilized effectively to counter environmental threats (For details, see Cribb 1990; Hettige *et al.* 1996; Pargal & Wheeler 1996). Comments from the chairperson of IMA are noteworthy:

The public has always been out there watching us. Though not a primary concern now, we know people will demand more and more as they become environmentally conscious.

We should get prepared to adequately meet their demands if they are legitimate.

The point of our discussion in this section is that despite community's potential to serve as informal regulators, PROPER has so far failed to elicit that potential. The mechanism through which the widening power imbalance plays out will be discussed in greater detail later.

Discloser Embeddedness of PROPER: Internal Learning Support

Much literature on informational environmental regulation attributes pollution problems to market failure. Though uncontroversial, what is missing in this account is consideration of ‘organizational failure’ in which a firm fails to behave as a unitary rational actor, misallocates their resources, and is guided by bureaucratic inertia (Gabel & Sinclair-Desgagné 1993). We find that PROPER provides opportunity for firms to mitigate organizational shortcomings by supporting internal learning. Of eighteen firm managers interviewed, sixteen confirmed that PROPER was a major, albeit not sole, trigger to improve environmental performance by carrying out modification of the existing production processes. The remaining two industry interviewees asserted that even before PROPER, they already had in place well-structured environmental compliance and management systems. But these two also admitted that there exists potential in PROPER to sophisticate the system.

Effective corporate environmental management requires continual processes for acquiring new information, and thus “learning processes are needed to help actors achieve goals by correcting errors, solving problems in new ways and developing knowledge in dealing with internal processes and external stimuli” (O’Rourke & Lee 2004, p. 189). Interviews have given us a number of detailed examples of internal learning processes. The following are common experiences shared by a majority of the firm managers interviewed.

PROPER contributes to enhancing environmental awareness at the top management level

PROPER contributes to shifting decisions with environmental implications up to the top management level in the corporate hierarchy. Previously, regulations typically reached only as far as the environmental managers and it was difficult for these middle managers to convince the

heads of the organization of environmental urgency. Since the PROPER rating assessment is considered to affect corporate reputation, regulatory messages should go to the top-level.

Surna Djajadiningrat, the Chairman of the PROPER Advisory Board, explains that many new participants are not compliant, but after joining the scheme they then improve. One participant told him, “At the beginning, we were not aware. After the PROPER Team came and gave us a form and check whether we complied or not, we became more aware [of what we are required to do].” The manager of a power plant in Jakarta which has received 4 consecutive PROPER ratings (Red, Blue, Blue, and Green) explained that PROPER had resulted in top management allocating more funds to her department to reduce emissions:

PROPER provided an incentive to improve our environmental performance, so the community could see what we are doing... The extra thing for PROPER is the evaluation. In the case of other government regulations, nobody else knows whether a company complies or not... Everyone wants to carry out environmental management but the problem is the cost. After PROPER, the impact is greater. It's easier for the environmental department to get funds from the directors.

PROPER contributes to stimulating changes in production processes

Corporate decision-makers' enhanced environmental awareness encourages reassessment of production processes. Without external stimuli or internal need for innovation, many firms' production processes become routinized (Rock & Angel 2005). In the PROPER regime, when preparing the data reported to the agency, managers should check their environmental status with multiple parameters provided by the agency. According to the managers we interviewed,

PROPER functions as external stimuli to break behavioural inertia and drives modification of production processes (for example, substituting materials or installing extra equipments).

The environmental manager of a petrochemical company which went from Blue Minus to Green in the latest round of PROPER explained that his company had to report 37 different parameters to the agency and that all of these had to comply with the regulations in order for the company to receive a Blue rating. He explained that in 2007, the company had only received a Blue Minus rating because a long dry summer had concentrated levels of ammonia in domestic waste from the staff canteen. Learning its lesson, the company now pays a certified contractor to remove its domestic waste to be turned into fertilizer. Although the company had previously only worked to meet regulatory standards, management recognized that there was a benefit to their reputation to be obtained through the PROPER press release and resolved to get a Green rating in 2009. They did so by, among other things, implementing a much improved Reduce-Reuse-Recycle program and bringing gas emissions under 50 percent of maximum permitted levels.

Ethylene gas is the major input in this company's production process, and gas which cannot be used in the manufacturing process is burnt off by flares. The company set itself the target of reducing annual CO₂ emissions by 1500 tons. One example of process modification under the company's conservation and demand management program was the installation of membrane units which reduce the need for flaring by recovering 93-99 percent of hydrocarbon vapour from the air. Although the company policy over the past couple of years had been very stringent in relation to capital expenditure, the company made a significant capital investment (over USD 700,000) for the new technology and saw a return on its investment within the year. When asked whether PROPER was a motivation in doing so, the manager replied, "Absolutely".

Reassessment and modification of production processes are accompanied by special training for employees. Top management recognizes that it is actually up to line managers and workers to implement corporate plans and safeguard the environment, and thus task reorganization is required at the lower level to follow through. For example,

Because of PROPER, we had to prepare even at the very low-level, the people in the workshop. They need to put the contaminated racks over here, not over there... The people who take care of the water and oil separation discharge need to make sure that the water that comes out here meets the standard and this is how things are run. That's a lot of learning... We had a lot of discussion with people in the field to train them (Personal correspondence with a Senior Manager of a mining company).

Due to the limited data, it cannot be concluded that PROPER necessarily brings about internal learning for all participating firms. In the majority of our cases, however, PROPER was able to stimulate the firms' motivations for learning at least to the extent that the managers looked for changes in production processes and employee training which provided opportunities for better environmental management.

PROPER contributes to facilitating social learning

We also find that PROPER facilitates what Fiorino (2001, p. 324) termed 'social learning', learning through "interaction and communication among actors" or Argyris and Schön's (1996) vision of 'double-loop learning'. If we summarize industry interviewees' view of PROPER, it runs as follows:

Sometimes we get very good feedback from them [PROPER inspectors]. I can see their attitude is not like a policeman, but more like a friend. They say, "Okay, you will need to

do this in order to comply with this. If you have a problem, let's sit down together to discuss." That's a good attitude and certainly helps a lot (Personal correspondence with Andy Budiarto, a senior manager of Jawa Power).

All industry interviewees viewed PROPER as guidance rather than traditional enforcement although they acknowledged that a failure to improve after two consecutive Black ratings exposed a firm to serious legal sanctions. Through discussions with the agency on what needs to be improved, firms look closely into the compliance requirements from the agency, their interpretation of regulations, and how to adjust business operations to the mandated requirements.

Recent regulatory scholarship has accumulated ample evidence that communication and mutual trust between regulators and regulatees are more likely than adversarial relations to have positive effects on regulatory performance (Lee 2008; May 2005). Contrary to environmental groups' criticisms, we find that PROPER-motivated learning has supported cooperative regulatory relations, helped firms reconsider the values and assumptions of the program, and encouraged systematic and ongoing searches for solutions to current problems.

MAJOR BARRIERS TO ENHANCING PROPER EFFECTIVENESS

At the early stage of implementation, PROPER seems to have contributed to enhancing participants' environmental performance to some extent. However, its moderate success should not blind us to the ways in which the program fails to ensure user embeddedness of disclosed information, which, arguably, could improve overall regulatory outcomes. With greater user embeddedness increasing external pressures on disclosers, discloser embeddedness could be further promoted despite indications that our industry interviewees have already integrated the disclosure requirement into corporate environmental decision-making to some extent. A fair

interrogation here is, “What interferes with more effective utilization of disclosed information?” the second part of the research question posed at the outset. In this section, we explore unfavorable *market conditions* and broad *political/administrative culture* in which PROPER’s anticipated benefits have been compromised. This will help us better understand whether and where informational regulations can fully reap desired regulatory outcomes.

Unfavorable Market Conditions

Departing from traditional command-and-control regulation, PROPER reflects on a new regulatory approach taking advantage of the influence of ethical consumers and investors on firm behaviour. In other words, PROPER is designed to help consumers make right decision about the purchase of environment-friendly products and to advise investors to refrain from investment in bad environmental performers by signalling whether the firm is properly managed. This means that a primary regulatory enforcement strategy of PROPER is ‘reputational sanctions’ (van Erp 2008), or sanctions by ‘naming and shaming’ (Braithwaite & Drahos 2002), as opposed to legal sanctions. It must be noted here that environmental reputational sanctions are likely to be effective where market actors are environmentally conscious (Karpoff *et al.* 2005) and where relational distance between actors is narrow (van Erp 2008). We observe that these two conditions are nearly absent in the Indonesian domestic market.

Weak environmental consciousness and lack of moral disapproval

In her case studies of reputational sanctions in three commercial markets (cotton trade, diamond trade and construction industry), van Erp (2008) identifies a shared sense of morality within existing markets as a critical condition under which reputation serves as an effective mechanism

for social control. The absence or low degree of environmental consciousness contributes to brushing aside moral disapproval of environmental offence (Braithwaite & Drahos 2002).

As noted earlier, Indonesian consumers are concerned primarily with price rather than environmental impacts when making decisions about product purchase. Given this situation, consumers have no incentive to limit the demand for the product as long as the price and quality of products are acceptable (Karpoff *et al.* 2005). In this general consumption pattern characterized by weak environmental consciousness, it is likely that potential investors are rarely interested in a firm's environmental performance if the firm keeps making profits (Karpoff *et al.* 2005) and "stockholders do not value the company less for its unreliability to comply to environmental regulations or for unethical behaviour" (van Erp 2008, p. 159). Insofar as the degree of environmental consciousness is low in existing markets, environmental offenders' feelings of shame would be neutralized and regulatory efforts to establish non-hierarchical, self-regulation of firms based on reputational sanctions are likely to falter.

Wide relational distance

Another unfavorable market condition impacting the effectiveness of PROPER is the wide relational distance between regulated firms and consumers. van Erp (2008) argues that regulatory disclosure policies can be effective where reputational information is shared by market actors in a timely manner. Admittedly, reputational sanctions can have substantial impacts when relations between actors in interaction are close enough to keep them from breaching mutual expectations based on shared norms. Markets of this kind consist of a relatively small number of parties connected by tight economic and social networks (van Erp 2008).

However, narrow relational distance is rare in modern economies comprising numerous anonymous actors, and thus exposure may not shame environmental offenders except for widely recognizable brand names. In the case PROPER, many, if not all, participants tend to be producers of basic commodities with no brand name. Of course, this problem is not confined to the Indonesian market but prevalent in others, as well. However, when combined with weak environmental consciousness, wide relational distance augments consumers' lack of interest in regulated firms' other performances than the price, and the environmental offences may not damage a firm's market, social and moral evaluations (Braithwaite & Drahos 2002; van Erp 2008), which ultimately hampers better utilization of PROPER information by disclosers.

We admit that regulatory efforts can be leveraged by disclosure of information regarding firms' environmental performance to markets, especially where the state monitoring and enforcement capacities are weak (Gupta & Goldar 2005, p.81). However, aforementioned unfavorable market conditions will pose barriers to the effective utilization of that information.

Undemocratic Political/Administrative Culture

In respect of PROPER ratings, we observe antagonism between environmental groups and the agency, which obstructs productive use of the ratings. While environmental groups suspect that firms may be bribing the agency to obtain a better rating, the agency tends to view environmental groups as implacable critics who feel obliged to take a contrary position to government regardless of the facts. Specifically, environmental groups point to some controversial firms, particularly in the mining industry, being given compliant ratings as evidence that the PROPER rating process must be corrupt. In response, the agency observes that PROPER ratings do not presently account for land degradation *per se*. They claim that as long as a company complies

with all the PROPER criteria, including the environmental impact assessment under which the firm's license was issued, the agency must not shy away from awarding a compliant rating. This leads into the debate as to whether Indonesian regulations themselves set the compliance bar too low, a topic that is beyond the scope of this paper.

We are not able to say about the extent to which one party's claim is more valid than the other's. One thing we can say confidently is that it is environmental groups' perception of government rather than factual evidence proving corruption of the PROPER rating process that explains their denial of the PROPER ratings as an advocacy tool.

Bureaucrats were a major feature of an Indonesian 'franchise system' in which members of public sector institutions took illegal benefits in return for supporting the Suharto regime (McLeod 2005). Even after the demise of Suharto in 1998, bureaucrats have continued pursuing illegal opportunities for personal enrichment (Kuncoro 2004). Given the role played by bureaucrats in Indonesian society, environmental groups' deep-rooted distrust toward the agency is understandable. Keeping in mind this broad political environment, we now turn to the discussion of how tensions between environmental groups and the agency stemming from Indonesia's administrative culture impede the more productive operation of PROPER.

The lack of transparency and public distrust toward the agency

Informational environmental regulation is premised on the assumption that mandatory information disclosure leads to greater transparency. Although information disclosure is certainly one concrete operationalization of transparency (Gupta 2008), the PROPER case shows that the assumed link between the two does not necessarily hold true. When the link is broken, regulatory disclosure may contribute to maintaining or strengthening the extant power imbalance between

information holders/disclosers and users. The broken link limits public participation which is a moral and political imperative of information disclosure.

As noted earlier, the only information made public through PROPER is the color rating corresponding to a firm's respective level of environmental performance. We agree with the agency's idea that a color rating is a comprehensible means of information disclosure that enables ordinary people to capture different degrees of corporate environmental performance. However, the problem here is that the lay public is forced to trust this information without knowing how the final ratings are arrived at. Unless the agency has the full confidence of the general public, critical questions about the credibility of the information and the legitimacy of the regulatory institution are raised. This is what has been happening in the case of PROPER.

Environmental NGOs have requested access to raw data from which finalized color ratings were drawn. However, the agency has refused to release the data and has done little to explain the reasons for refusal, although its disclosure is legally unconstrained. Consequently, lack of access to the raw data amplified NGOs' distrust toward the agency and PROPER *per se*:

PROPER is not transparent and I suspect that the ratings are bought and sold between companies and the MOE officials to get favorable ratings. There is high potential for corruption... PROPER ratings can be used by companies to merely create a green public image without real improvement (Personal correspondence with Selamat Daroyni at Institute Hijau Indonesia).

At the outset of PROPER, environmental groups concurred with the idea of PROPER using color ratings to trigger reputation effects and to better encourage corporate social responsibility. Now, they suspect that closure of raw data is a deliberate choice to produce particular ideal results at the expense of the accuracy of information.

In the absence of transparency, information disclosure policies can be strategically used as a tool for symbolic governance without accomplishing substantial environmental benefits and degenerate into excuses for avoiding the needed changes in action (Florini 2008; Fung *et al.* 2007). This is a critical issue surrounding information disclosure policies since whether the public and NGOs trust an agency influences, to a considerable degree, public acceptance of the agency's judgments (Pedersen 2001; Thomas 1997; Tyler 2001). A logical inquiry that follows from the above discussion is why the agency has refused full disclosure of information.

Limited view of meaningful public participation

Our interviews with the agency staff as well as preliminary examination of the PROPER website and press releases confirm that the agency has put high priority on the involvement of the public in PROPER's implementation. Rasio Sani, secretary of PROPER, stated confidently, "A key success factor of PROPER is credibility of the institution. To increase the credibility, we have included many stakeholders... I mean, public participation." In stark contrast, no interviewees from NGOs agree with the agency's assertion:

What is the role of the public and NGOs here [in PROPER]? None. We don't have any engagement with PROPER. The involvement of the public and NGOs is very minimal, at best. Saying that it is minimal doesn't mean that we don't want to be involved, but instead that we are not being invited by them [the agency] (Personal correspondence with Rino Subagyo, Executive Director of Indonesian Center for Environmental Law).

We find that a source of the conflicting evaluations of public involvement lies in different perceptions of meaningful public participation. While NGOs argue for direct community

involvement in the data verification process, the agency denies the NGO approach. Rasio Sani clarifies the agency view:

People like to say about public participation, transparency, and so on. But the hardest thing is to decide “at what level”... We think the best way to involve the public is in the final assessment through the PROPER Advisory Board. The Board consists of members from diverse segments including academia, NGOs, mass media as well as environmental watchers. We think 8 persons are enough. They [the Advisory Board] have authority that if they want to go to the field, they can do it. This is how we ensure that all the information we publicize is transparent and credible before the public... I believe true public involvement is through representatives.

The agency is extremely skeptical of direct public participation beyond the Advisory Board:

“NGOs play three roles – complain, complain, and complain.”

The agency’s passive approach to public involvement is somewhat understandable if we consider deeper administrative culture of the country. Indonesia was under the Suharto regime called *Orde Baru* (or New Order) established by the coup in 1965 and lasting until 1998. The regime was notorious for cruel repression of opposition voices, consequent to the military dictatorship. More than three decades of an oppressive regime created a military-like bureaucratic culture in government organizations and removed the idea of public participation in public affairs. Although this entrenched agency culture reached a turning point in 1997 with the enactment of Act 23 on Environmental Management that provided the public with the legal right to access environmental information, the notion of public participation is still unfamiliar in the government agencies. From the perspective of the agency, verifying the PROPER data through the Advisory Board is already distinctively progressive.

As Reich (1985) wrote in his essay on public deliberation, public administrators often tend to equate administrative effectiveness with prompt decision-making. The environmental agency has taken on this efficiency character. They are afraid that direct involvement of affected communities and NGOs may stir controversy, inhibit firms' cooperation and delay the data verification process which, in turn, makes them appear ineffective. Rather than view disagreements and challenges as managerial failures, adroit agencies should consider them as "natural and desirable aspects of the formation of public values" (Reich 1985, p. 1637), ultimately contributing to more successful implementation of policy. Admittedly, NGO support of PROPER could help facilitate more effective implementation of the program by legitimizing its spirit, scrutinizing firms' environmental behavior and providing inputs to the agency (Ayres & Braithwaite 1992; Ramkumar & Petkova 2007).

CONCLUSIONS

To understand the potential of mandatory information disclosure for environmental governance, this research has explored the impact of disclosed information on corporate environmental practices, with particular focus on the second phase of PROPER. In the process, the research examined what PROPER has achieved, how the program functions, and how the underlying mechanism of the program might be strengthened to better support positive informational effects.

Major findings from the research can be summarized as follows. First, at its inception, the second phase of PROPER induced a number of noncompliant firms into compliance and even beyond-compliance, though changes to the program prevent us from determining whether these improvements have been sustained over time. Second, improvement of the firms' environmental performance is more attributable to internal learning rather than external pressures. Third,

implementation efforts have, ironically, failed to enhance transparency that the program designers claimed to depend on. Unfavorable market conditions and political/administrative culture posed barriers to effective operation of PROPER.

Based on the findings, we suggest that the involvement of interested third parties (for example, environmental groups) in the disclosure system would serve two useful functions, both *instrumental* and *normative*, correcting the problems with PROPER, in particular, and potential perils of informational environmental regulation, in general.

From the instrumental perspective, third party involvement can contribute to ensuring the credibility of information which is a cornerstone of informational regulation. In the case of PROPER, the information publicized has been attacked by environmental groups as inaccurate or misleadingly out of context. On this account, environmental groups are currently arguing for the scaling-down or even termination of PROPER and, instead, implementation of traditional command-and-control regulation. They believe that in the absence of corporate social responsibility, unsatisfactory environmental performance can only be cured by strong legal enforcement (Thornton *et al.* 2009). The agency can defend itself as well as the program by allowing public interest groups to access the raw data for verification purposes or even inviting them at the data collection stage to obtain local knowledge. As a growing number of scholars have suggested, local knowledge provided by community groups constitutes an important complement to official information (Fischer 2000). Moreover, environmental groups, having potential to play a role of an information intermediary, can offer much in information analysis and dissemination processes (Fung *et al.* 2007; Gupta 2008; Koski & May 2006; Ramkumar & Petkova 2007). Third party involvement can be used for an instrumental purpose to help the agency reclaim the credibility and objectivity of information disclosed.

More importantly, the involvement of public interest groups in the disclosure systems can strengthen the legitimacy of information and deepen democratic values. Indeed, the credibility of information is premised on and fostered by its legitimacy. Note that in the case of PROPER, it is ironically not targeted disclosers but intended beneficiaries that argue against the disclosure program. As hinted at by this case, a potential peril of informational regulation lies in the possibility that intended users who might disagree with dominant interpretations are left with little recourse if those who have power to shape information access entitlements do not recognize what is not disclosed may be as important as what is, and thus deny the users' requests. The agency has rejected NGO suggestions for joint data verification on the ground that it is unfair to involve some NGOs as partners while excluding others. This rationale for the refusal was unacceptable to NGOs since they could select and delegate their own representatives without imposing any additional costs on the agency.

Regulatory policies should have not only instrumental functions but also normative, educative functions (Landy 1981). By allowing active involvement of public interest groups, informational environmental regulation can be more dialogic, stimulating deliberation of "who gets to determine what constitutes the right process and the right results" for whom (Florini 2008, p. 14). It can also help to prevent agency capture and advance the idea of how to best serve the public interest (Ayres & Braithwaite 1992).

In principle, we cannot agree more with the general proposition that information disclosure is an important step toward empowering the public as well as enhancing corporate environmental performance. However, introduction of information disclosure policies without considering regulatory culture associated with different market conditions and democratic traditions may impede the effectiveness of this potentially useful regulatory method.

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FIGURE LEGENDS

Figure 1. Trend in Compliance: Official Data. (Source: The Ministry of Environment, Indonesia)
Note that no results were released for the periods of 2005-2006 and 2007-2008. Note also that percentages compliance scores represent percent of participating firms rated as compliant or beyond-compliant (that is, Blue, Green and Gold).

Figure 2. Trends in Compliance among 81 Participants from 2002-2003. Note that only 78 and 75 participants were identified for 2006-2007 and 2008-2009 respectively.

Figure 3. Trends in Compliance among 246 Participants from 2003-2004. Note that only 226 and 209 participants were identified for 2006-2007 and 2008-2009 respectively.

Figure 4. Trends in Compliance among 466 Participants from 2004-2005. Note that only 426 and 387 participants were identified for 2006-2007 and 2008-2009 respectively.

Table 1. PROPER Ratings by Color Coding[†]

	<i>Preliminary Ratings (2002)</i>	<i>2002-2003</i>	<i>2003-2004</i>	<i>2004-2005</i>	<i>2006-2007</i>	<i>2008-2009</i>
Gold	0	0	0	0	1	1
Green	8	8	9	23	46	41
Blue	20	51	114	221	188	170
Blue minus	N/A	N/A	N/A	N/A	156	229
Red	32	22	86	150	45	82
Red minus	N/A	N/A	N/A	N/A	38	48
Black	25	4	42	72	42	56
Total	85	85	251	466	516	627

[†] No results were released for the periods of 2005-2006 and 2007-2008.

Table 2. Perceptions of the Effectiveness of PROPER[†]

	Overall Effectiveness	Market Forces		Community Empowerment		Internal Learning	
		Actual	Potential	Actual	Potential	Actual	Potential
Participating firms (n=18)	Highly effective	No (17) Unsure (1)	Yes (18)	No (16) Unsure (2)	Yes (17) Unsure (1)	Yes (16) Unsure (2)	Yes (18)
NGOs (n=7)	Ineffective	No (7)	No (7)	No (7)	No (7)	N/A	

[†] Numeric in parenthesis means the number of respondents.

Figure 1. Trend in Compliance: Official Data.

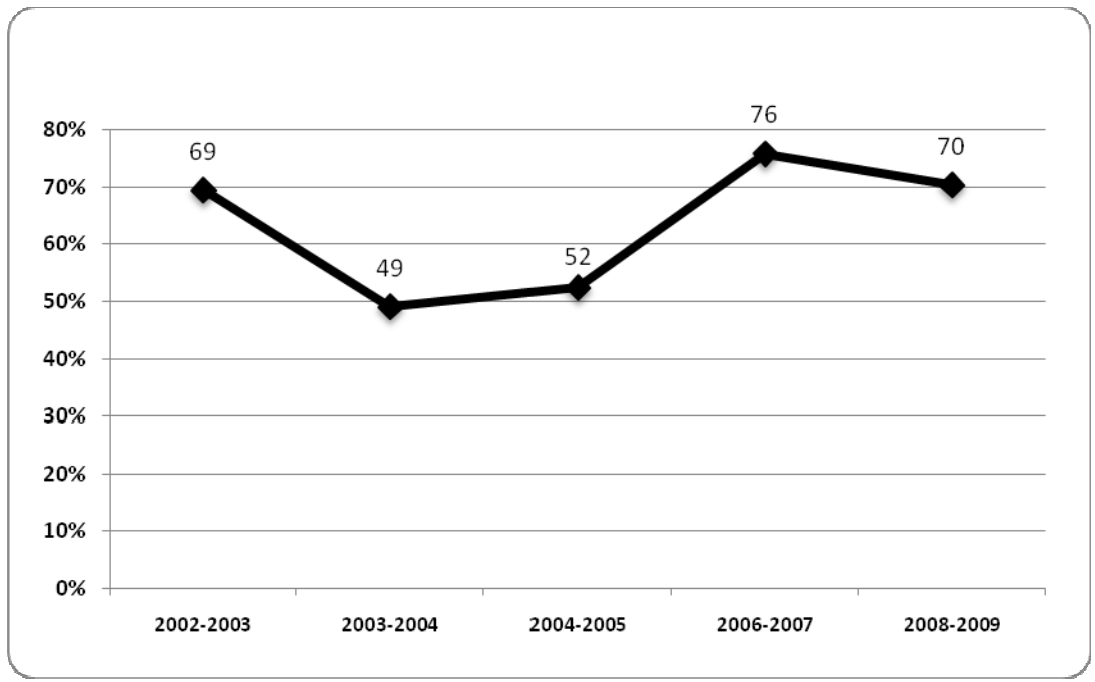


Figure 2. Trends in Compliance among 81 Participants from 2002-2003.

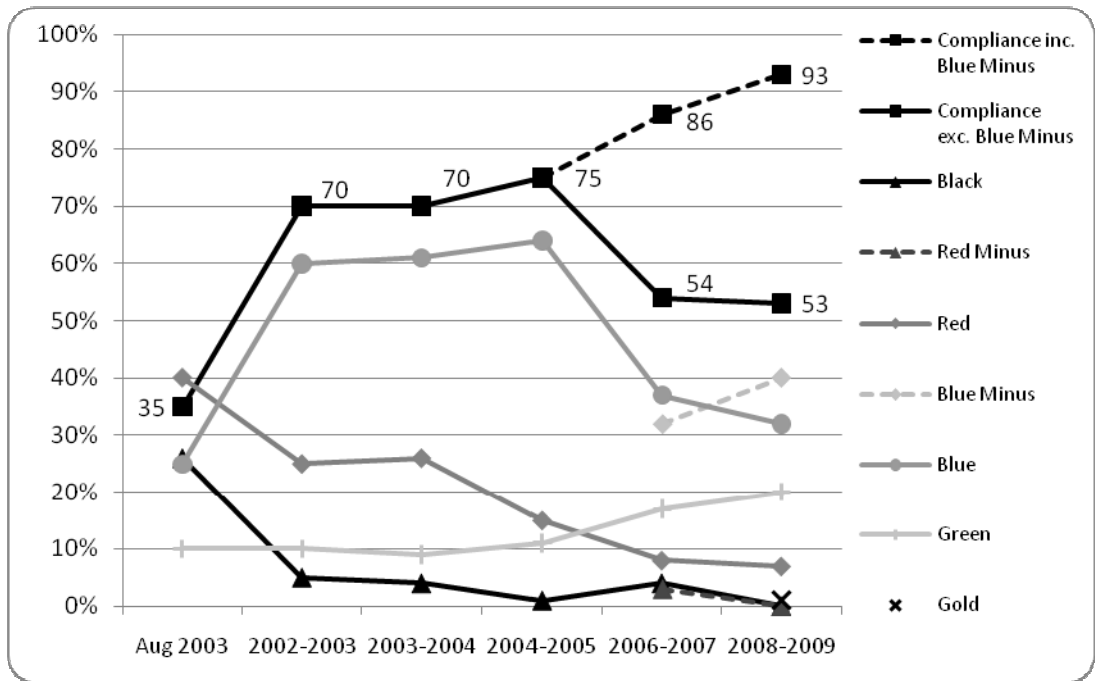


Figure 3. Trends in Compliance among 246 Participants from 2003-2004.

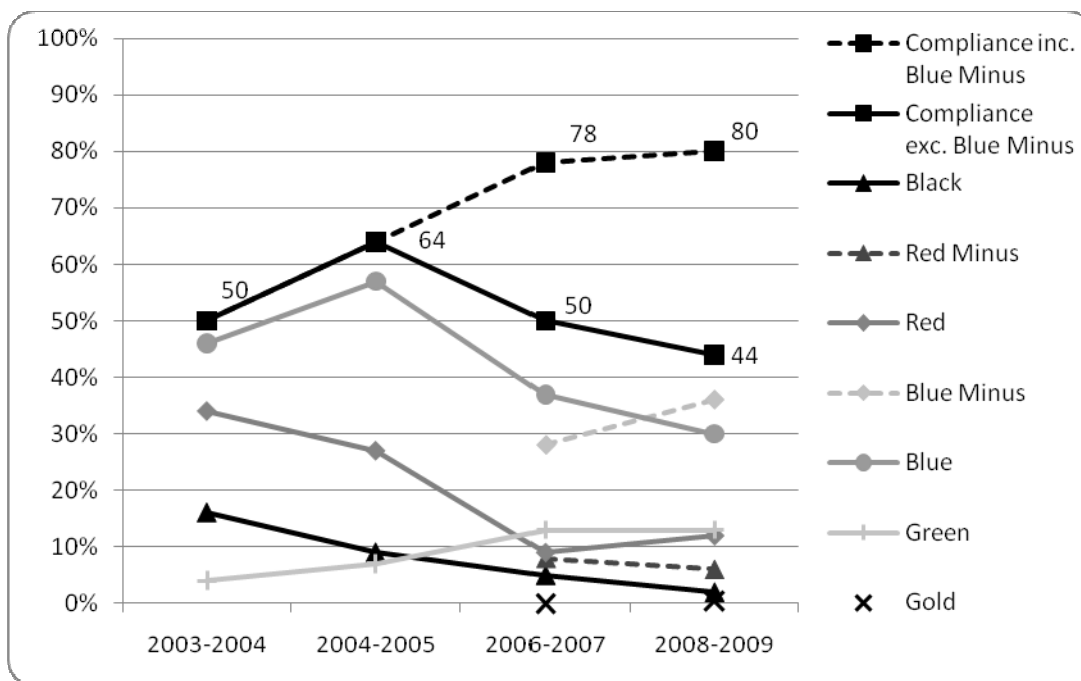


Figure 4. Trends in Compliance among 466 Participants from 2004-2005.

