

# SAVING THE WORLD OR CORRUPT ATMOSPHERE COMMODIFICATION?

The Legitimacy of Joint Implementation Under Kyoto



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Deadline for submission: ..... September 1, 2009:

Number of words: 17,818 (max. 18.000)

21.08.2009

Faculty of Law

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## 1 Introduction

The urgent existential crisis of global warming warrants an international response commanding broad and deep respect from states, institutions, interest groups, and the public. To achieve such respect, necessary for the success of the struggle to save life on earth as we know it, the international response must have great legitimacy. If the response fails a test of trust and believability, its success is unlikely. It is thus crucial to consider the legitimacy of the "flexibility mechanisms" – International Emissions Trading, Clean Development Mechanism, and Joint Implementation – made central to the international response by the Kyoto Protocol.<sup>1</sup>

In his 2008 Nobel Peace Prize acceptance speech, Intergovernmental Panel on Climate Change ("IPCC") chair Rajendra Pachauri explained that "we have a short window of time to bring about a reduction in global emissions" if global warming is to be kept within manageable parameters.<sup>2</sup> Since then, it seems that climate change presents a yet more urgent crisis with each day of news.<sup>3</sup> The first "key message" of a 2009 congress of top climate scientists begins soberly and representatively: "Recent observations confirm that, given high rates of observed emissions, the worst case IPCC scenario trajectories (or even worse) are being realized."<sup>4</sup> Reports are getting rather dramatic. In April 2009, scientists watched an Antarctic ice sheet the size of Northern Ireland "explode[] from the

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<sup>1</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, Mar. 16, 1998 [hereinafter Kyoto Protocol].

<sup>2</sup> R.K. Pachauri, Chairman of the IPCC, Nobel Lecture, (Dec. 10, 2007) [http://nobelprize.org/nobel\\_prizes/peace/laureates/2007/ipcc-lecture\\_en.html](http://nobelprize.org/nobel_prizes/peace/laureates/2007/ipcc-lecture_en.html)

<sup>3</sup> *E.g.*, AMANDA STAUDT, NEW SCIENCE DEMONSTRATES NEED FOR AGGRESSIVE CAP ON CARBON POLLUTION, NATIONAL WILDLIFE FEDERATION, Mar. 20, 2009 (highlighting recent scientific reports concerning predictions of increased sea level rise rates, forest mortality, arctic sea ice melt rates, and longevity of CO<sub>2</sub> global warming capacity).

<sup>4</sup> Press release, International Scientific Conference on Climate Change, Key Messages from the Congress (Mar. 12, 2009) [http://climatecongress.ku.dk/newsroom/congress\\_key\\_messages/](http://climatecongress.ku.dk/newsroom/congress_key_messages/).

center outwards,” as they fretted about the “staggering rate of warming” now observed at the earth’s poles and potential sea level rise consequences.<sup>5</sup>

To stop more substantial global warming and resulting dire consequences, societies must transition from the past two centuries’ carbon energy basis to a cleaner one involving drastically reduced greenhouse gas emissions. This idea – that effective climate change mitigation essentially requires figuring out how to leave fossil fuels in the ground – is widely recognized and accepted.<sup>6</sup> Indeed, according to the United States Secretary of Energy, a science and technology “revolution” is needed.<sup>7</sup>

The three flexibility mechanisms, International Emissions Trading, Clean Development Mechanism, and Joint Implementation, form the heart of Kyoto’s scheme to reduce greenhouse gas levels by reducing anthropogenic emissions and enhancing removals. Yes, developed nations have agreed to emissions caps under Kyoto, but the flexibility mechanisms bring the meaning of these into question. If these mechanisms lack legitimacy – i.e., if they are not respected, trusted, and known to be valid – there is a very good chance that the international global warming mitigation effort will fail. The concept of legitimacy in this context essentially involves central questions: Why abide by and respect international legal institutions? Why take them seriously?

The subject of this thesis is the legitimacy of Joint Implementation (“JI”). Can the deficiencies faced by JI be effectively addressed so that JI can be retained with adequate legitimacy?

While the legitimacy of International Emissions Trading (“IET”) and the Clean Development Mechanism (“CDM”) are at least as important and topical as JI’s, to allow for a more detailed treatment of the flexibility mechanism that has received the least attention in legal literature, this thesis will be limited to JI in specific and detailed discussions.

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<sup>5</sup> Fiona Harvey, *Ice loss sparks new climate change fears*, Financial Times, Apr. 10, 2009.

<sup>6</sup> E.g., Richard Black, *‘Safe’ climate means ‘no to coal,’* BBC News, Apr. 29, 2009; Fiona Harvey, *Climate scientists warn of looming disaster*, Financial Times, Apr. 29, 2009.

<sup>7</sup> John M. Broder and Matthew L. Wald, *Big science role is seen in global warming cure*, New York Times, Feb. 11, 2009 (Sec. Stephen Chu specified that “Nobel-level” breakthroughs are needed in three areas: electric batteries, solar power, and the development of new crops that can be turned into fuel.).

However, many of the propositions and ideas set forward are also applicable to IET and CDM. When so more widely applicable, the issues may be discussed in a broader context.

Section 2 explores the concept of legitimacy, its components and meaning. Section 3 explains JI, and section 4 its problems, particularly in relationship to legitimacy. Section 5 addresses how and whether JI can be fixed to close its legitimacy gap. Section 6 concludes.

## **2 Legitimacy**

### **2.1 Why legitimacy matters**

Legitimacy is the foundation of governmental power, and "involves the capacity of a political system to engender and maintain the belief that existing political institutions are the most appropriate and proper ones for the society."<sup>8</sup> Questions about the legitimacy in international law, its institutions and mechanism, are questions about the "moral force of international law."<sup>9</sup> "Legitimacy concerns the justification of authority; it provides grounds for deferring to another's decision, even in the absence of coercion or rational persuasion."<sup>10</sup> Without sufficient legitimacy, there is no moral duty of obedience to international law by nations, organizations, or people. Degrees of legitimacy and of such moral duty rise or fall correspondingly.

Questions about the legitimacy of international law institutions are receiving increasing attention as these institutions gain more authority and the consensual nature of their activities diminishes.<sup>11</sup> For example, Kyoto and WTO treaties create institutions with significant policymaking and enforcement authorities that can effectively require state action unforeseen at the time of treaty-making. The western world's strongest and most common source of legitimacy, democracy, is not really available in the context of

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<sup>8</sup> SEYMOUR MARTIN LIPSET, *POLITICAL MAN: THE SOCIAL BASES OF POLITICS* 64 (expanded ed., Heinemann 1983).

<sup>9</sup> Mattias Kumm, *The Legitimacy of International Law: A Constitutionalist Framework of Analysis*, 15 *Eur. J. Int'l L.* 907, 908 (2005).

<sup>10</sup> Daniel Bodansky, *The Legitimacy of International Governance*, 93 *Am. J. Int'l L.* 596, 603 (1999).

<sup>11</sup> *Id.* at 597.



international law.<sup>12</sup> Democracy means different things to different people, including (or not including) equal rights under rule of law, accountability, protection of human rights, free and open debate, public participation, and other values. However, the core of democracy, majority rule as manifested in free elections with universal participation, is inapplicable to international law and its institutions.

”Legitimacy” is distinct from ”lawful.” A thing can be legal (lawful) but illegitimate, e.g., an immoral law. Also, a thing can be legitimate but unlawful, as in, for example, an act of civil disobedience or the popular overthrow of a despotic regime. The issue here is not whether the flexibility mechanisms are lawful, but rather to what extent they are legitimate, i.e., to what extent are they appropriate and proper.

Successful global warming mitigation requires participation of all major sectors of society. The challenge demands a major transition and evolution in how people live and work and how economies and societies function. Developed countries must act swiftly and decisively, enacting legislation to substantially reduce emissions and funding programs effective to bring about this objective. Citizens of these countries may have to make sacrifices. Certainly they will need to face significant changes in the priorities of their daily worlds. Developing countries must also prioritize low-emission development now. Wealthy nations must provide them with financial and technical support for this. Corporations and other private sector institutions must earnestly engage to take into account long term common good to an unprecedented degree. People must support these efforts, accept lifestyle changes, and demand that the necessary transitions be made.<sup>13</sup>

International cooperation is an essential part of this mitigation effort because the atmosphere is a global commons and because of the potential for free riding nations to be

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<sup>12</sup> *Id.* at 600 and 615 – 617; Jost Delbruck, *Exercising Public Authority Beyond the State: Transnational Democracy and/or Alternative Legitimation Strategies?*, 10 *Ind. J. Global Legal Stud.* 29, 37 (2003).

<sup>13</sup> Recent sociological research indicates that human attitudes towards global warming can worsen the problem. “Apathetic and hostile responses to climate change, in other words, produce a feedback loop and reinforce the process of global warming.” John Gertner, *Why isn’t the brain green?*, *New York Times*, Apr. 16, 2009. It is no great leap to think that people’s feelings about the international climate change legal regime would affect their attitudes towards global warming in this context.

spoilers.<sup>14</sup> Thus, the international legal regime for global warming, first formalized in 1992 with the United Nations Framework Convention for Climate Change (“UNFCCC”), will have a crucial central role.

It may well be that the degree of mitigation success will correspond with the level of legitimacy held by the mechanisms and institutions of the international climate change regime. Global warming mitigation demands a lot of us all. If the heart of the regime, at which currently lie the flexibility mechanisms, lacks legitimacy, it remains highly doubtful that states, institutions, or peoples will feel obliged to meet the challenge. Few will believe in or abide by that which lacks moral force.

## 2.2 What legitimacy is

In the context of institutions and devices of international law such as the Kyoto flexibility mechanisms, it is useful to consider two aspects of legitimacy. The first, procedural legitimacy, or input legitimacy, encompasses notions of fairness, transparency, democracy, and rule of law in the working of the mechanism at issue. The second, substantive legitimacy, or output legitimacy, concerns the outcomes of the mechanisms. The questions in this aspect are about how effective is a mechanism in achieving its objective, and in respecting human rights and relevant principles of international law.

In a sense, these two aspects of legitimacy correspond to bundles of principles of international law. A *principle* of international law guides the formation, interpretation, and implementation of *rules*, such as the provisions governing the flexibility mechanisms.

A ‘rule’ ... ‘is essentially practical and, moreover, binding ... [T]here are rules of art as there are rules of government’ while a principle ‘expresses a general truth, which guides our action, serves as a theoretical basis for the various acts of our life, and the application of which to reality produces a given consequence.’<sup>15</sup>

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<sup>14</sup> Jouni Paavola, *Governing atmospheric sinks: the architecture of entitlements in the global commons*, 2 Int’l J. of the Commons 313 (2008); *Developments in the Law – International Environmental Law*, 104 Harv. L. Rev. 1484, 1536 (1991) (characterizing the atmosphere and the global climate as “true commons,” the international regulation of which poses “serious hold-out and free rider problems”).

<sup>15</sup> PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 233 (2d ed., Cambridge Univ. Press 2003) (citing *Gentini case (Italy v. Venezuela)* M.C.C. (1903)); see also, Hans Christian Bugge, *The*

### 2.2.1 Procedural legitimacy

As noted above, procedural legitimacy encompasses notions of fairness, transparency, democracy, and rule of law. To be considered legitimate, mechanisms established by international law must be open and the rules must be known, understandable, and followed. Compliance must be verifiable. People must be able to ask questions and raise concerns and these must be considered and addressed. Those holding power and making decisions must be accountable.

Public participation is essential to procedural legitimacy.<sup>16</sup> Indeed, public participation may be the aspect of democracy that is most readily applicable to institutions of international law.<sup>17</sup> It is important not only in its own right, but also as a means to improve decision-making in furtherance of sustainable development and environmental integrity.<sup>18</sup>

Reflecting its acceptance as a modern norm of international governance, public participation is written into the UNFCCC, albeit only in the sort of general terms familiar to students of international conventions. Parties commit to "[p]romote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations."<sup>19</sup> In carrying out this commitment, parties must "promote and facilitate ... [p]ublic access to information on climate change and its effects [and] [p]ublic participation in addressing climate change and its effects and developing adequate responses."<sup>20</sup>

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*Principle of "Polluter Pays" in ECONOMICS AND LAW, IN LAW AND ECONOMICS OF THE ENVIRONMENT 53, 73 – 74 (Erling Eide and Roger van den Bergh eds., Juridisk Forlag 1996).*

<sup>16</sup> David A. Wirth, *Reexamining Decision-Making Processes in International Environmental Law*, 79 Iowa Law Review 769, 802 (1994); Jonas Ebbesson, *The Notion of Public Participation in International Environmental Law*, 8 Yearbook of Int'l Env't'l L. 51, 62 (1997). Providing legitimacy is one of the bases of the principle of public participation. *Id.* at 75 – 81.

<sup>17</sup> Daniel Bodansky, *The Legitimacy of International Governance*, 93 Am. J. Int'l L. 596, 614 (1999).

<sup>18</sup> Ebbesson, *supra* note 16, at 68 – 69.

<sup>19</sup> United Nations Framework Convention on Climate Change art. 4(1)(i), May 9, 1992 [hereinafter UNFCCC].

<sup>20</sup> *Id.* art. 6(a).

Fleshing out the principle of public participation in the context of procedural legitimacy means looking beyond this UNFCCC language. A right to environmental information has grown from efforts to advance human rights.<sup>21</sup> The 1992 Rio Declaration on Environment and Development directs not only appropriate access to environmental information, but also the opportunity for the public to participate in environmental decision-making processes and accompanying judicial review, as well as the encouragement by governments of public environmental awareness and participation.<sup>22</sup>

The 1998 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters ("Aarhus Convention") is the most recent and complete statement of the imperatives of the principle of public participation.<sup>23</sup> Because of treaty overlap, Aarhus parties must satisfy its requirements in fulfillment of UNFCCC public participation directives, and other UNFCCC parties have looked to Aarhus for guidance.<sup>24</sup> To enhance the impact of public participation, Aarhus sets out five means: 1) early public participation, while many options remain open; 2) early information to the public about the participation process and the nature of decision-making; 3) provision for the public's submission of comments; 4) requirement that the decision-maker take due account of public input; and 5) the right to have the decision reviewed by a court.<sup>25</sup>

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<sup>21</sup> Benjamin W. Cramer, *The Human Right to Information, the Environment and Information about the Environment: From the Universal Declaration to the Aarhus Convention*, 14 *Comm. Law and Policy* 73 (2009); Ebbesson, *supra* note 16, at 69 – 75 (citing rights to political participation, for indigenous peoples, to a fair trial, and to information).

<sup>22</sup> Rio Declaration on Environment and Development principle 10, Jun. 14, 1992 [hereinafter Rio Declaration]; *see also*, World Charter for Nature, G.A. Res. 37/7 (1082), principle 23, Oct. 28, 1982.

<sup>23</sup> Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Jun. 25, 1998 [hereinafter Aarhus Convention].

<sup>24</sup> Jeremy Wates, *The Aarhus Convention as a tool for enhancing the role of the public in tackling climate change*, European Regional Workshop on Article 6 of the UNFCCC, May 2009, <http://www.swedishepa.se/en/In-English/Menu/> (search Jeremy Wates); UN Economic Commission for Europe, *Climate information showcased at workshop in Stockholm*, May 28, 2009, <http://aarhusclearinghouse.unece.org/news.cfm?id=1000327>.

<sup>25</sup> Ebbesson, *supra* note 16, at 86.

In addition to the Aarhus Convention and the 1992 Rio Declaration, environmental impact assessment is required by a large number of treaties and international instruments.<sup>26</sup> International Court of Justice opinions indicate that EIA preparation may be an emerging requirement of customary international law.<sup>27</sup>

Other instruments of international law also facilitate access to justice in the form of a non-governmental right to go to court for environmental protection.<sup>28</sup> These include both human rights conventions and specific international environmental law conventions.<sup>29</sup> The most advanced treaty on EIA is the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). It prescribes with substantial detail the minimum requirements that an EIA document must satisfy and applies to "activities with linkages to climate change" undertaken by Espoo parties.<sup>30</sup>

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<sup>26</sup> Rio Declaration; e.g., UN Convention on the Law of the Sea art. 206, Oct. 7, 1982; Protocol on Environmental Protection to the Antarctic Treaty art. 8 & annex I, Oct. 4, 1991; Kuwait Regional Convention for the Co-operation on the Protection of the Marine Environment from Pollution (Persian Gulf) art. IX, Apr. 1978; Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Mar. 24, 1983; Ebbesson, *supra* note 16, at 87 (listing additional treaty examples).

<sup>27</sup> *Gabcikovo-Nagymaros Project* (Hung. v. Slov.) I.C.J. Rep. 1997 (Sept. 25) at 111 – 113 (J. Weeramantry separate opinion); *Nuclear Tests* (N.Z. v. Fr.) I.C.J. Rep. 1995 (Sept. 22) 144 – 45 (J. Weeramantry dissenting opinion).

<sup>28</sup> Ebbesson, *supra* note 16, at 74 and 81 – 87.

<sup>29</sup> Universal Declaration of Human Rights art. 10, Dec. 10, 1948; International Covenant on Civil and Political Rights art. 14, G.A. res. 2200A (XXI), Mar. 23, 1976; European Convention for the Protection of Human Rights and Fundamental Freedoms art. 6, ETS no. 005, Mar. 9, 1953; American Convention on Human Rights art. 8, Jul. 18, 1978; Convention on Third Party Liability in the Field of Nuclear Energy, Jul. 29, 1960, as amended Jan. 28, 1964; Vienna Convention on Civil Liability for Nuclear Damage, May 21, 1963; International Convention on Civil Liability for Oil Pollution Damage, Nov. 29, 1969; International Convention on Liability and Compensation for Damage in Connection with the Carriage of hazardous and Noxious Substances by Sea, May 6, 1996; Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, Jun. 21, 1933.

<sup>30</sup> Convention on Environmental Impact in a Transboundary Context art. 4(1) and annex II, Sept. 10, 1997; ECE Guidance on the Practical Application of the Espoo Convention, § 2.4, ¶ 26 <http://www.unece.org/env/documents/2006/eia/ece.mp.eia.8.pdf>.

Based on the Aarhus Convention and other international documents on the subject, public participation processes should include basic elements:

First, the process should provide a true opportunity for the public to take part in decisionmaking, offering it a possibility to influence the outcome. Second, it should reflect a broad understanding of who may act to protect the 'public interests' – the premise being that not only governmental and administrative institutions should do so. Third, the decisionmaking process, as well as the follow-up monitoring of any implementation measures, should be transparent and open. Fourth, the public at large should have access to environmental information. Fifth, it should allow for legal review and the right to appeal.<sup>31</sup>

Transparency can be considered an emerging principle of international law and is also tied to procedural legitimacy.<sup>32</sup> Transparency is

the availability and accessibility of knowledge and information about: (1) the meaning of norms, rules, and procedures established by the treaty and practice of the regime, and (2) the policies and activities of parties to the treaty and of any central organs of the regime as to matters relevant to treaty compliance and regime efficacy.<sup>33</sup>

It is not reasonable to expect anyone to consider legitimate that which is not transparent. Lack of transparency breeds distrust and incoordination, and creates space for misfeasance and malfeasance. This is especially so if safeguards against conflicts of interest are weak. Furthermore, transparency facilitates accountability by allowing media and other non-state actors to provide critiques that can force constructive reaction.<sup>34</sup>

The precautionary principle is another piece of procedural legitimacy, and it is widely accepted as a general principle of international environmental law.<sup>35</sup> According to Philippe Sands, Principle 15 of the Rio Declaration "defines the core of the precautionary

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<sup>31</sup> Ebbesson, *supra* note 16, at 59.

<sup>32</sup> Carl-Sebastian Zoellner, *Transparency: An Analysis of an Evolving Fundamental Principle in International Economic Law*, 27 Mich. J. Int'l L. 579, 580 – 81 (2006); Delbruck, *supra* note 12, at 42.

<sup>33</sup> ABRAM CHAYES & ANTONIA HANDLER CHAYES, *THE NEW SOVEREIGNTY* 135 (1995).

<sup>34</sup> Delbruck, *supra* note 32, at 42 – 43.

<sup>35</sup> ARIE TROUWBORST, *EVOLUTION AND STATUS OF THE PRECAUTIONARY PRINCIPLE IN INTERNATIONAL LAW*, 34 (Kluwer Law International 2002).

principle.”<sup>36</sup> This provides, “[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” UNFCCC Article 3(3) includes similar wording as it directs the use of “precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.”

While there is no widespread agreement on a precise definition of the precautionary principle, nor on its practical requirements, a number of core elements can be inferred from state practice: “in the presence of a *threat* of (non-negligible) environmental harm accompanied by scientific *uncertainty*, regulatory *action* should nevertheless be taken to prevent or remedy the hazard concerned.”<sup>37</sup> Among the measures associated with the principle are a shifting of the burden of proof and use of conservative evidentiary presumptions.<sup>38</sup> Indeed, “[m]ost commentators agree that in cases of uncertainty about the effects of a human-induced development, one of the most consistent applications of the precautionary principle would entail the placing of the burden of proving that the activity in question *will not* cause unacceptable environmental damage on its proponents before allowing it to proceed, instead of requiring its opponents to show that it *will* before cancelling or adapting it.”<sup>39</sup> In this context, the requirement of proof is not absolute certainty, but generally something like “‘a high level of probability’ that no serious or irreversible damage will occur.”<sup>40</sup>

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<sup>36</sup> Sands, *supra* note 15, at \_\_\_.

<sup>37</sup> TROUWBORST, *supra* note 35, at 51 – 52.

<sup>38</sup> *Id.* at 52.

<sup>39</sup> *Id.* at 14 – 15; see also, e.g., World Charter for Nature, *supra* note 22, para. 11(b).

<sup>40</sup> TROUWBORST, *supra* note 35, at 15.

### 2.2.2 Substantive legitimacy

A primary principle of substantive legitimacy is effectiveness: how well mechanisms or institutions of international law accomplish the law's objective, which, for the the UNFCCC, is stated in its Article 2:

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

The "level [of greenhouse gas concentrations in the atmosphere] that would prevent dangerous anthropogenic interference with the climate system" is debated, with more than a 2° C rise considered dangerous.<sup>41</sup> A range of concentrations (expressed in parts per million ("ppm") of carbon dioxide equivalent ("CO<sub>2</sub>e")) necessary to stay below this threshold with varying degrees of probability are provided by different sources. The Stern Review on the Economics of Climate Change, completed in 2006, suggests a stabilization target level within the range 450 to 550 ppm.<sup>42</sup> In 2008, leading climate scientist, NASA's James Hansen, suggested a target stabilization level of 350 ppm, which would represent a reduction from the approximate current 385 ppm.<sup>43</sup> There are well-reasoned calls for stabilization at 300 ppm.<sup>44</sup>

However, here two observations are most important. First, stabilization requires nothing less than prompt and radical reductions in net emissions of greenhouse gases. At

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<sup>41</sup> *E.g.*, Council of the European Union, Information note 7242/05, Mar. 11, 2005 <http://register.consilium.europa.eu/pdf/en/05/st07/st07242.en05.pdf>.

<sup>42</sup> NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE* (Cambridge Univ. Press 2007) [hereinafter Stern Review].

<sup>43</sup> James Hansen, et al, *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?*, Apr. 7, 2008, [http://pubs.giss.nasa.gov/abstracts/2008/Hansen\\_etal.html](http://pubs.giss.nasa.gov/abstracts/2008/Hansen_etal.html).

<sup>44</sup> PUBLIC INTEREST RESEARCH CENTER, *CLIMATE SAFETY 17* (2008), <http://www.climatesafety.org/>.



the conservative end of estimates, a cut in emissions to less than 20% of 2005 levels is ultimately required, and global emissions must drop by around 25% from 2005 levels by 2050.<sup>45</sup> Others suggest that to attain stabilization at lower than 450 ppm, global cuts of more than 85% by 2050 are necessary.<sup>46</sup> Cuts must be rapid, providing for a peak in emissions within the next couple of decades to avoid a need for yet more drastic cuts in the future, as well as higher risks of climate impacts.<sup>47</sup> Recent studies evaluating cumulative emissions conclude that we can use only about one-quarter of the remaining fossil fuel reserves to keep the chance of exceeding a 2° C temperature rise by 2050 at 25%.<sup>48</sup>

Second, since the third paragraph of the UNFCCC's preamble specifically notes that "the share of global emissions originating in developing countries will grow ...," necessarily implying that the share of emissions from developed countries will decline, the Article 2 objective can only be read to mean that *the most drastic emissions reductions must occur in developed countries* and that economic growth must be decoupled from greenhouse gas emissions in developing countries.<sup>49</sup>

How well the flexibility mechanisms act to level off greenhouse gas concentrations in the atmosphere may be their ultimate measure. However, "environmental integrity," another principle within the framework of substantive legitimacy, means delivering "real climate benefits without causing other environmental damages."<sup>50</sup> If people and the ecosystems upon which they depend suffer as a result of activities ostensibly undertaken to mitigate global warming, backlash would not be unreasonable.

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<sup>45</sup> Stern Review at 225 – 228.

<sup>46</sup> PUBLIC INTEREST RESEARCH CENTER, *supra* note 44, at 21.

<sup>47</sup> Stern Review at 225 – 233.

<sup>48</sup> Black, *supra* note 6.

<sup>49</sup> Christina Voigt, *Climate Change and the Mandate of Sustainable Development: Observations from a Legal Perspective*, in SUSTAINABLE DEVELOPMENT IN INTERNATIONAL AND NATIONAL LAW 547, 560, (Hans Christian Bugge & Christina Voigt eds., Europa Law Publishing 2008).

<sup>50</sup> Christina Voigt, *Is the Clean Development Mechanism Sustainable? Some Critical Aspects*, 8 Sustainable Dev. L. and Pol'y 15, 15 – 16 (2008) (defining environmental integrity): see also, Ernestine Meijer and Jacob Werksman, *CDM – concepts, requirements and project cycle, Keeping it clean: safeguarding the environmental integrity of the Clean Development Mechanism*, 2 *Env'tl Liability* 81, 82 (2007).

A crucial principle of international environmental law is sustainable development and it too must be considered part of substantive legitimacy. Not only does UNFCCC Article 2 refer to enabling "economic development to proceed in a sustainable manner," but both the right and duty to promote sustainable development and a direction to cooperate to promote an international economic system that leads to sustainable development lie among the principles enumerated in Article 3.<sup>51</sup>

Perhaps sustainable development should be considered as a complex policy objective, itself consisting of primary elements that should each be treated as independent principles.<sup>52</sup> Four recurring elements of sustainable development reflected in international agreements: 1) the need to preserve natural resources for the benefit of future generations (intergenerational equity principle); 2) the aim of exploiting natural resources in a manner that is "sustainable," "prudent," "rational," "wise," or "appropriate" (sustainable use principle); 3) the "equitable" use of natural resources, which implies that use by one state must take into account the needs of other states (equitable use or intragenerational equity principle); and 4) the need to ensure that environmental considerations are integrated into economic and other development plans, programs, and projects, and that development needs are taken into account in applying environmental objectives (integration principle).<sup>53</sup> Intergenerational and intragenerational equity are captured explicitly among the UNFCCC principles by reference to protection of the climate system "for the benefit of present and future generations of humankind."<sup>54</sup> Indeed, "[s]ecuring broad-based and sustained

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<sup>51</sup> The UNFCCC is among the first international environmental treaties to explicitly include a statement of "principles." Sands, *supra* note 15, at 253. Since the chapeau of Article 3 directs the parties to be guided "inter alia" by the enumerated principles, the list of principles is not exclusive of others not specified. Daniel Bodansky, *The United Nations Framework Convention on Climate Change: A Commentary*, 18 Yale J. Int'l L. 451, 502 (1993).

<sup>52</sup> Massimiliano Montini, *Sustainable Development with the Climate Change Regime*, in SUSTAINABLE DEVELOPMENT IN INTERNATIONAL AND NATIONAL LAW 523 (Hans Christian Bugge & Christina Voigt eds., Europa Law Publishing 2008).

<sup>53</sup> Sands, *supra* note 15, at 253.

<sup>54</sup> UNFCCC art. 3(1).

participation in international co-operation to tackle climate change depends upon finding an approach widely understood as equitable.”<sup>55</sup>

Legal principles with roots in equity are important to the substantive legitimacy of Kyoto’s flexibility mechanisms in other respects as well. As noted by the third paragraph of the UNFCCC preamble, developed countries are responsible for the largest share of historical and current greenhouse gas emissions. Neither the contributions of individual countries to global warming nor the impacts are uniformly distributed. (The same is manifestly true of individuals’ contributions and the impacts upon them.<sup>56</sup>) Consequently, the UNFCCC incorporates a strong version of the principle of common but differentiated responsibilities, which, though not unprecedented, is also its first unambiguous adoption in an international law instrument.<sup>57</sup> As implied by the Rio Declaration, the common but differentiated responsibilities principle is rooted in recognition of states’ differing needs, pressures placed on the environment, and capabilities in terms of wealth and technology.<sup>58</sup> The practical consequences of the principle are that all states are entitled (or required) to participate in international efforts to address environmental problems and that obligations on states may be differentiated.<sup>59</sup>

In light of their historical and current role in creation of the crisis, as well as their greater resources, developed countries are to take the lead in combating climate change. Not only UNFCCC Article 3 explicit principles reflect this: Article 4 mandates that developed countries *demonstrate* their leadership in modifying longer-term trends in

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<sup>55</sup> Stern Review at 535.

<sup>56</sup> More than 98 per cent of people affected by climate disasters live in developing countries. United Nations Development Programme, Human Development Report 2007 – 08 77, [http://hdr.undp.org/en/media/HDR\\_20072008\\_EN\\_Complete.pdf](http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf).

<sup>57</sup> Christopher D. Stone, *Common But Differentiated Responsibilities in International Law*, 98 Am. J. Int’l L. 276, 279 (2004).

<sup>58</sup> *Id.* at 290 – 91; Rio Declaration principles 6 and 7.

<sup>59</sup> Centre for International Sustainable Development Law, *The Principle of Common But Differentiated Responsibilities: Origins and Scope*, August 2002 [http://www.cisdsl.org/pdf/brief\\_common.pdf](http://www.cisdsl.org/pdf/brief_common.pdf).

emissions through the policies and measures they adopt.<sup>60</sup> This has also been called the "leadership principle."<sup>61</sup>

Basic calculations based on IPCC information and the notion of simple per capita emissions equity lead to the conclusion that emissions reductions in the UK and USA, for example, must near 99% by 2050.<sup>62</sup> A more thorough and well-reasoned analysis, called the Greenhouse Development Rights Framework, looks at the common but differentiated responsibilities principle in the context of national responsibility and capacity.<sup>63</sup> It starts with the premises that climate change must be mitigated and that developing countries must continue economic development at least to attain a "development threshold," where people have realized their right to development. The Framework credibly concludes that the national mitigation obligations of the developed countries vastly exceed the emission reductions that they could make domestically. Accordingly, wealthier and higher-emitting countries should be given "negative allocations" of greenhouse gas emissions under the international regime, requiring them not only to undertake aggressive domestic action for emissions reductions but also to finance further reductions abroad.<sup>64</sup>

Closely related to the equity-based leadership principle is the polluter pays principle, which

mainly deals with the distribution of costs between the polluter and the victim of pollution. It establishes the main rule that the polluter – and not the victim – is responsible for the costs of prevention, restitution and damage. The development of this principle, from its old roots, indicates

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<sup>60</sup> UNFCCC Art. 3(1) and 4(2)(a).

<sup>61</sup> David M. Driesen, *FreeLunch or Cheap Fix?: The Emission Trading Idea and the Climate Change Convention*, 26 B.C. Env'tl Aff. L. R. 1 (1998).

<sup>62</sup> George Monbiot, *This crisis demands a reappraisal of who we are and what progress means*, The Guardian, Dec. 4, 2007.

<sup>63</sup> PAUL BAER, TOM ATHANASIOU, SIVAN KARTHA, AND ERIC KEMP-BENEDICT, *THE GREENHOUSE DEVELOPMENT RIGHTS FRAMEWORK, THE RIGHT TO DEVELOPMENT IN A CLIMATE CONSTRAINED WORLD*, (Rev. Second. Ed., Heinrich Boll Foundation, 2008).

<sup>64</sup> *Id.* at 67 - 71.

that this has been perceived as a 'natural' legal solution, based on consideration of fairness or 'justice.'<sup>65</sup>

For present purposes, the polluter pays principle must be seen on two levels. The first, more closely related to the leadership principle, is on the state-to-state level. It concerns questions about relative state efforts, commitments, and distribution of costs. The second level concerns operators of greenhouse gas emitting facilities and others, both private and public sector, whose activities affect greenhouse gas concentrations in the atmosphere by impacting carbon absorption or otherwise. While the international agreements tend not to explicitly address issues of cost and equity on this second level, it is here where things happen on the ground, where things change – or do not – and where efforts are seen to take place, as is often true in the use of the flexibility mechanisms.

The polluter pays principle can be a highly visible and important aspect of substantive legitimacy. The principle can have powerful pedagogical and norm-creating effects.

If the public sees that the government acts to ensure members of society, even large corporations, bear responsibility for the costs they impose on others, then the public will more likely trust their government. Individuals will also be more likely to accept personal responsibility for themselves. The opposite may be true if individuals understand (even if incorrectly) that large corporations can 'buy' their way out of pollution abatement obligations.<sup>66</sup>

Human rights, as *jus cogens*, must also be respected by any particular institution of international law for it to be considered substantively legitimate. Protection of the environment is central to protection of human rights, implicated by rights to health and to

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<sup>65</sup> Bugge, *supra* note 15, at 65. *See also*, Sands, *supra* note 15, at 279 and 285 (offering similar definition but noting that “the extent of the principle is up for debate – whether it includes costs for decontamination, clean up and reinstatement – it certainly includes costs of measures required by public authorities to prevent and control pollution.”) *See also*, Jonathan Remy Nash, *Too Much Market? Conflict Between Tradable Pollution Allowances and the “Polluter Pays” Principle*, 24 Harv. Env’tl L. R. 465, 466 (2000). Although the polluter pays principle originated in the field of environmental economics, it can be considered to be a principle of equity, as well as one of ethics. Bugge, *supra* note 15, at 55 – 56, 66.

<sup>66</sup> Nash, *supra* note 65, at 479.

life itself, as well as subsidiary rights such as those to water, food, and family life. The linkages between human rights and environmental protection are now widely recognized.<sup>67</sup> It is not hard to see how global warming may affect "[v]irtually the whole gamut of human rights protected under international law," including also the right to a livelihood, the right not to be displaced, and the right to culture, as well, of course, the right to a healthy environment.<sup>68</sup> The human rights aspects of global warming have garnered more attention as it becomes clear that the poor are disproportionately and more imminently harmed by global warming.<sup>69</sup> "Generally, poor countries, and poor people in any given country, suffer the most ...."<sup>70</sup> It has been argued that "the human rights consequences of global warming are potentially so severe that they will overwhelmingly prevail over economic and related

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<sup>67</sup> International Covenant on Economic, Social and Cultural Rights arts. 7b, 10-3, and 12, Dec. 16, 1966; Convention on the Rights of the Child art. 24, Nov. 20, 1989; ILO Convention No. 169 concerning Indigenous and Tribal Peoples in Independent Countries arts. 2, 6, 7, 15, 25, Jun. 27, 1989; African Charter on Human and Peoples' Rights arts. 16 and 24, Jun. 26, 1991; Additional Protocol to the American Convention on Human Rights in the area of Economic, Social and Cultural Rights art. 11, Nov. 17, 1988; Aarhus Convention preable; Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Water Courses and International Lakes, Jun. 17, 1999; *Lopez-Ostra v. Spain*, ECHR (1994), Series A, No. 303-A; Dinah Shelton, *Human Rights, Health & Environmental Protection: Linkages in Law and Practice: A Background Paper for the World Health Organization*, Health and Human Rights Working Paper Series No 1 (2002) [http://www.who.int/hhr/information/en/Series\\_1%20%20Human\\_Rights\\_Health\\_Environmental%20Protection\\_Shelton.pdf](http://www.who.int/hhr/information/en/Series_1%20%20Human_Rights_Health_Environmental%20Protection_Shelton.pdf)

<sup>68</sup> Sumudu Atapattu, *Global Climate Change: Can Human Rights (and Human Beings) Survive this Onslaught?*, 20 *Colo. J. Int'l Envtl. L. & Pol'y* 35, 45 – 60 (2008).

<sup>68</sup> Philippe Cullet, *The Global Warming Regime after 2012: Towards a New Focus*, *Economic & Political Weekly*, Jul. 12, 2008, 109, 110.

<sup>69</sup> *Id.*; see also, Julian Borger, *Climate change disaster is upon us, warns UN*, *The Guardian*, Oct. 5, 2007 (UN emergency relief coordinator attributes to climate change 12 of 13 2007 disasters resulting in emergency UN appeals).

<sup>70</sup> Stern Review at 31. "Developing countries will be particularly badly hit, for three reasons: their geography; their stronger dependence on agriculture; and because with their fewer resources comes greater vulnerability." *Id.* at 33; see also, e.g., Sarah Krakoff, *American Indians, Climate Change, and Ethics for a Warming World*, 85 *Denv. U. L. Rev.* 865 (2008).

considerations if human rights are effectively taken into consideration in global warming law and policy.”<sup>71</sup>

The UNFCCC does not call air or atmosphere the “common heritage” of mankind, as are space and the deep sea floor; instead it acknowledges a “common concern.”<sup>72</sup> This recognizes that climatic issues can only be addressed through international cooperation and limitations on sovereignty, but leaves unsettled the extent to which states can lay claims on pieces or aspects of the climate.<sup>73</sup> This situation is unresolved by Kyoto, which nonetheless effectively provides developed countries with entitlements to pollute.<sup>74</sup> The linkage to the fundamental human rights implications of global warming would be more direct under Kyoto if the “common heritage” status was acknowledged.<sup>75</sup> However, the fact is immutable – all humans have an interest in the atmosphere as its health is necessary for the human rights of all, though more immediately for some than others.

Efficiency, meaning production of the desired result while minimizing resource expenditures, is also important for legitimacy.<sup>76</sup> Governments and institutions that are perceived to be wasteful in progressing towards their objective are disdained and disrespected. The UNFCCC includes efficiency among its principles in its reference to “cost-effective ….”<sup>77</sup>

Tension between the concept of efficiency, especially when characterized as cost-effectiveness, and the other elements of substantive legitimacy may exist. Given the weight of the other elements in the context of the existential problem of global warming, efficiency can not subjugate these other elements.<sup>78</sup> This is especially so when the potential costs of global warming, i.e., the costs of doing nothing or too little for mitigation,

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<sup>71</sup> Cullet, *supra* note 68, at 114.

<sup>72</sup> UNFCCC preamble.

<sup>73</sup> Cullet, *supra* note 68 at 115; PATRICIA BIRNIE, ALAN BOYLE & CATHERINE REDGWELL, INTERNATIONAL LAW AND THE ENVIRONMENT 128 – 130 (Oxford Univ. Press 3<sup>rd</sup> rev. ed., 2009)

<sup>74</sup> Cullet, *supra* note 68, at 115.

<sup>75</sup> *Id.* at 114 – 115.

<sup>76</sup> Delbruck, *supra* note 12, at 42.

<sup>77</sup> UNFCCC art. 3(3).

<sup>78</sup> Voigt, *supra* note 49.

are included in a cost equation. In any event, expensive is not the same as inefficient. Only if substantive legitimacy is achieved at high cost due to waste and unwise spending can these elements conflict.

### **3 Flexibility mechanisms under the Kyoto Protocol**

#### **3.1 Role of the flexibility mechanisms in general**

Under Kyoto Protocol Article 3, the treaty's Annex B establishes commitments for reductions in net greenhouse gas emissions (emissions minus removals, or sinks) in terms of percent reductions from a 1990 baseline to be achieved by 2012, the end of the five year-long first commitment period. Only developed countries, identified in Annex 1, have Annex B commitments. Developing countries have no specific reduction commitments. Collectively, satisfaction of these targets would signify a 5% reduction in annual average emissions below 1990 levels for Annex 1 countries.<sup>79</sup> This target is defined as a weighted average of the six greenhouse gases directly addressed by Kyoto: carbon dioxide, methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride.

Due to the selection of the 1990 reference year, and perhaps for political reasons, the former communist countries, which saw substantially reduced industrial output after the fall of their governments around 1990, have commitments that far exceed their actual expected levels of emissions. This difference between the commitment levels and the actual emissions of these former communist countries, which is greatest for the Russian Federation and Ukraine, is called "hot air."

In its Articles 6, 12, and 17, the Kyoto Protocol established the three inter-related flexibility mechanisms – Joint Implementation, Clean Development Mechanism, and International Emissions Trading, respectively – as key instruments for the control of greenhouse gas emissions, or, more precisely, to facilitate "cost-effective" satisfaction of Annex B commitments. Under the flexibility mechanism provisions, Annex 1 parties can achieve some portion of the required emission reductions beyond their own borders through the use of various economic instruments. The flexibility mechanisms therefore tend to make the Annex B allocations representative of the overall level of responsibility that the

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<sup>79</sup> T.H. TIETENBERG, EMISSIONS TRADING PRINCIPLES AND PRACTICE 15 (2<sup>nd</sup> ed., Resources for the Future 2006).



developed countries undertake, rather than of the emissions reductions that are required to physically occur within their borders.<sup>80</sup> All three can be considered varieties of emissions trading mechanisms.

Emissions trading mechanisms have numerous dimensions and there are many varieties of such systems. A basic distinction lies between 'cap and trade' and 'baseline and credit' approaches. Under the former, a fixed number of permits are created and each allows the emission of a stipulated amount of pollutant. These permits are allocated or auctioned to firms [or nations] that are then free to trade them on the open market. In a baseline and credit regime, companies [or nations] are given performance targets or 'baselines' – often set with reference to business as usual (BAU) projections – and they can generate credits by beating their emissions targets. Such credits may then be traded on the open market. With cap and trade, there is a fixed supply of permits for trading, whereas in baseline and credit the supply of credits for trading depends on the regulatees' performance in generating credits by reducing emissions below baselines.<sup>81</sup>

## **3.2 Three flexibility mechanisms**

### **3.2.1 International emissions trading**

The Article 17 mechanism, International Emissions Trading, is a cap and trade system. Through Annex B, Kyoto essentially created permits to limit emissions for the Annex 1 countries. The majority of states, including such important emitters as China and India, are developing countries that have no emissions caps and are excluded from both Annex B and IET. Annex 1 countries can buy and sell to each other their emissions allocations under this scheme, either to comply with their emissions reductions commitments or to reap financial reward for having emissions below their commitment levels.

Annex 1 states (or any group of collaborating states) may establish internal emissions trading schemes in which the state's allowable emissions, or a portion thereof,

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<sup>80</sup> Stern Review at 534.

<sup>81</sup> Robert Baldwin, *Regulation lite: The rise of emissions trading*, 2 Regulation & Governance 193, 194 (2008).

are allocated to individual domestic polluters. The European Union Emissions Trading System ("EU ETS") is the most prominent example of this. As is the EU ETS, domestic regimes may be linked to the international Kyoto system to facilitate trades by individual domestic actors (including conglomerates and speculators) directly with foreign actors to meet emissions limitations in the domestic system, as well as states' corresponding Annex B commitments.

### **3.2.2 Clean development mechanism**

The Article 12 Clean Development Mechanism, in contrast to IET, is a baseline and credit scheme. With CDM, Annex 1 countries can get credits towards meeting their Annex B commitments by funding projects that reduce anthropogenic emissions of greenhouse gases, or that enhance anthropogenic removal by sinks, in developing (non-Annex 1) countries.

Article 12 specifies that CDM is also to help developing countries achieve sustainable development. In practice, and in deference to the principle of sovereignty, satisfaction of this purpose is left to determination of the host country, through its voluntary participation in CDM and right to approve or reject any particular CDM project.

### **3.2.3 Joint implementation**

Joint Implementation, created by Kyoto Protocol Article 6, allows an Annex 1 country, or private entities "under its responsibility," to fund emissions reduction or sink enhancement projects in an Annex 1 country and thus obtain credits towards compliance with Annex B commitments.<sup>82</sup> Article 3(10) and (11) require the addition of carbon credits to the account of the purchasing country and subtraction from the account of the host country.

## **3.3 Basis for the flexibility mechanisms**

The three flexibility mechanisms are an attempt to fulfill the UNFCCC's call for "cost-effective" policies and measures "to ensure global benefits at the lowest possible cost."<sup>83</sup> Forms of emissions trading, the concepts behind them evolved from the 1960 work

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<sup>82</sup> Kyoto Protocol art. 6(3).

<sup>83</sup> UNFCCC art. 3(3).

of economist Ronald Coase proposing a revolutionary approach to regulation focused on property rights.<sup>84</sup>

Emissions trading mechanisms minimize the financial burden of reaching a specified level of pollution reduction.<sup>85</sup> Countries or firms with lower emissions abatement costs have an incentive to reduce emissions below the levels strictly required of them so they can sell emissions permits to polluters with higher abatement costs.<sup>86</sup> The "marginal abatement cost," that is the cost of emissions reduction, will usually be greater in energy efficient industrialized countries than in developing countries or less fuel-efficient former communist countries. In addition, regulators are, in theory, relieved of costly and contentious information-processing and decision-making tasks as choices are placed in the hands of managers and engineers.<sup>87</sup> Thus, these market mechanisms result in the most cost-effective (i.e., lowest cost) achievement of overall emissions reduction targets.<sup>88</sup> As Richard Sandor, considered to be the father of emissions trading, puts it, "[t]he goal of market-based regulation is to reduce the cost of achieving a given pollution-reduction target or, equivalently, to realize larger pollution reductions at the same cost."<sup>89</sup>

Another closely related objective of these mechanisms is spatial flexibility. Polluters at all levels who have the option to engage in an emissions trading scheme are free to choose how and where to achieve compliance with regulatory requirements or international commitments.

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<sup>84</sup> TIETENBERG, *supra* note 79.

<sup>85</sup> Bruce A. Ackerman and Richard B. Stewart, *Reforming Environmental Law*, 37 *Stan. L. Rev.* 1,333, 1,341 – 1,342 (1985).

<sup>86</sup> TIETENBERG, *supra* note 79, at 27.

<sup>87</sup> Ackerman, *supra* note 85, at 1,342 – 43; BERND HANSJURGENS, *EMISSIONS TRADING FOR CLIMATE POLICY: US AND EUROPEAN PERSPECTIVES 3* (Cambridge Univ. Press 2005).

<sup>88</sup> *Stern Review* at 371, 376.

<sup>89</sup> Richard L. Sandor, et al., *An Overview of a free-market approach to climate change and conservation*, in *CAPTURING CARBON AND CONSERVING BIODIVERSITY, THE MARKET APPROACH 57* (ed. by Ian R. Swingland, Earthscan Publications, Ltd. 2002) at 57.

This type of mechanism is also said to result in predictability of outcome.<sup>90</sup> Cap and trade regimes in particular establish pollution ceilings. Traditional command and control mechanisms or taxation mechanisms, in contrast, lack such predictable outcomes. In addition to the virtue inherent in allowing selection of a predictable outcome at a chosen target, it is argued that this capability limits "arcane technical discussions" associated with traditional command and control regulation in favor of discussions about what outcomes to choose, thus enhancing democracy.<sup>91</sup>

Proponents of emissions trading schemes also claim that they stimulate innovation.<sup>92</sup> Among other things, they rely on a study of a United States emissions trading program showing that the program "did not necessarily lead to more innovation, as measured by patent counts, but did lead to more environmentally friendly innovation," as measured by the effect of innovations on efficiency of new pollution control equipment.<sup>93</sup> They argue that firms have the incentive to find novel and cheaper ways to cut emissions so that allowances can be generated and sold.

Proponents of the flexibility mechanisms point to political advantages. Inclusion of the flexibility mechanisms in Kyoto was seen as a way to offer something to developing countries (via CDM investment).<sup>94</sup> They were also a way to avoid major opposition from entrenched powers, both state and industrial.<sup>95</sup> Entrenched powers can use their accumulated wealth to dampen the pain of emission reduction regulation through these mechanisms.

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<sup>90</sup> Robert N. Stavins, *Implications of the US experience with market-based environmental strategies for future climate policy*, in EMISSIONS TRADING FOR CLIMATE POLICY: US AND EUROPEAN PERSPECTIVES 63, 64 (Bernd Hansjurgens ed., Cambridge Univ. Press 2005).

<sup>91</sup> Bruce A. Ackerman and Richard B. Stewart, *The Democratic Case for Market Incentives*, 13 Colum. J. Envtl L. 171, 189 (1987).

<sup>92</sup> HANSJURGENS, *supra* note 87, at 4

<sup>93</sup> TIETENBERG, *supra* note 79, at 69.

<sup>94</sup> Cullet, *supra* note 68, at 109, 111.

<sup>95</sup> Jan-Tjeerd Bloom & Andries Nentjes, *Alternative design options for emissions trading: a survey and assessment of the literature*, in CLIMATE CHANGE AND THE KYOTO PROTOCOL 45, 57 (Michael Faure, et al, eds., Edward Elgar 2003).

Relatedly, a major advantage of emissions trading schemes is the enabling of separate consideration of efficiency and equity: equity first through allocation of emissions permits and then efficiency through trading mechanisms.<sup>96</sup>

Finally, it is said that the flexibility mechanisms have helped create a partnership of many varied actors worldwide who now collaborate to finance emission-reducing projects and transfer low carbon technology to less developed or less efficient countries.<sup>97</sup> CDM and JI provide incentives to potential host countries to create enabling environments for private sector investment (e.g., economic and political stability, liberalised markets, strong legal structures) and related national capacities.<sup>98</sup> Thus, the flexibility mechanisms, despite their shortcomings, represent an important step towards a system of vigorous international cooperation for mitigation of the global climate crisis.<sup>99</sup> Perhaps the development of international climate change law will be similar to that of international human rights law in growing from apparently weak beginnings to a more sturdy and substantial framework over time.

### **3.4 Supplementarity**

How Annex 1 countries meet their Annex B commitments is largely up to their discretion. However, use of the flexibility mechanisms in attaining compliance is supposed to be only "supplemental" to actual reductions in-country to force developed countries to undertake significant domestic action to reduce emissions.<sup>100</sup> A firm definition of

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<sup>96</sup> Stern Review at 536.

<sup>97</sup> Stern Review at 384, 570.

<sup>98</sup> Stern Review at 573.

<sup>99</sup> United States Government Accountability Office, *Observations on the Potential Role of Carbon Offsets in Climate Change Legislation*, Testimony before the Subcommittee on Energy and Environment, Committee on Energy and Commerce, House of Representatives (March 5, 2009) at 15.

<sup>100</sup> Luke Brander, *The Kyoto Mechanisms and the economics of their design*, in *CLIMATE CHANGE AND THE KYOTO PROTOCOL* 25, 31 (Michael Faure, et al, eds., Edward Elgar 2003); Kyoto Protocol art. 6(1)(d) ("the acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3"), 12(3)(b) ("Annex B Parties may use Certified Emission Reductions only for ... compliance with part of their quantified emission limitation and reduction commitments"), and 17 ("shall be supplemental to domestic actions").

”supplemental” has eluded the international community.<sup>101</sup> The only certainty about ”supplementarity” is that an Annex 1 country can not entirely satisfy its Annex B commitments by acquiring credits through the flexibility mechanisms, but, as a practical matter, a showing of any domestic effort that is arguably ”significant” will be sufficient to demonstrate ”supplementarity” even if reliance on the flexibility mechanisms to meet commitments is the principle means.<sup>102</sup>

### **3.5 Additionality**

Importantly, to obtain CDM or JI credits, emissions reductions resulting from these projects must satisfy a test of ”additionality.”<sup>103</sup> That is, *but for* the CDM or JI project and the income it provides, the emissions reduction or greenhouse gas removal would not have taken place. In other words, it must be shown that the project results in lower emissions or greater removals than would have taken place in a business as usual scenario without CDM or JI. If CDM or JI credits ”are created that represent emission reductions that would have happened anyway, then these ’paper reductions’ will undermine the integrity of the Kyoto Protocol.”<sup>104</sup> Every carbon credit generated by a CDM or JI project allows the funding country with emission reduction commitments to emit one ton CO<sub>2</sub>e more than its reduction target, so any non-additional project that generates credits is likely to increase global emissions.

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<sup>101</sup> UNFCCC, The Marrakesh Accords and the Marrakesh Declaration, Decision -/CP.7 (Mechanisms), 2001 [hereinafter Marrakesh Accords] (“... the use of the mechanisms shall be supplemental to domestic action and ... domestic action shall thus constitute a significant element of the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction commitments ....”)

<sup>102</sup> Id; FROUKJE MARIA PLATJOUW, REDUCING GREENHOUSE GAS EMISSIONS AT HOME OR ABROAD? A STUDY ON THE SUPPLEMENTARITY REQUIREMENT FOR THE FLEXIBILITY MECHANISMS OF THE KYOTO PROTOCOL 30 (Institutt for offentlig rett Universitetet i Oslo, 2008).

<sup>103</sup> Kyoto Protocol art. 6(1)(b) and 12(5)(c).

<sup>104</sup> Voigt, *supra* note 50, at 16; *see also*, Stern Review at 376; United States Government Accountability Office, Observations on the Potential Role of Carbon Offsets in Climate Change Legislation, Testimony before the Subcommittee on Energy and Environment, Committee on Energy and Commerce, House of Representatives (Mar. 5, 2009) at 13.

## 3.6 Details of joint implementation

### 3.6.1 JI actors

JI projects are emissions reduction or greenhouse gas removal enhancement activities undertaken in and funded by Annex 1 countries to help meet the funding countries' Annex B reduction commitments. JI is most used and encouraged in the countries of Central and Eastern Europe, with their high levels of energy inefficiency in industrialized economies.<sup>105</sup> Annex 1 parties may authorize corporations or other legal entities to participate in JI projects provided that the participation is under the party's responsibility.<sup>106</sup> Credits for JI projects, called "Emissions Reductions Units,"<sup>107</sup> are available for projects that started as early as 2000, but only for the five-year Kyoto crediting period 2008 – 2012.<sup>108</sup>

The Conference of the Parties to the UNFCCC/Meeting of the Parties to Kyoto (COP/MOP) provides guidance regarding the implementation of JI and exercises authority over the Joint Implementation Supervisory Committee, which it established in 2005.<sup>109</sup> The JI Supervisory Committee oversees verification of Emission Reduction Units generated by JI project activities, although only in certain cases (Track 1, explained below). It is also responsible for the accreditation of independent entities (and has an Accreditation Panel for this purpose) and the review of related standards and procedures.<sup>110</sup> The Committee's procedures concerning independent entity accreditation provide for various

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<sup>105</sup> Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005, Decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, 30 March 2006, Decision 9/CMP.1 [hereinafter Montreal COP Report].

<sup>106</sup> Kyoto Protocol art. 6(3).

<sup>107</sup> "Emissions Reduction Units," "Certified Emissions Reductions," and "Assigned Amount Units," the terms used in JI, CDM, and IET, respectively, are all expressed as metric tons of carbon dioxide equivalent and are effectively interchangeable. To minimize jargon, this thesis generally uses the term "carbon credits" from hereon in referring to all or any of these units.

<sup>108</sup> Montreal COP Report, Decision 9/CMP.1.

<sup>109</sup> *Id.* Decision 10/CMP.1, para 1 (FCCC/KP/CMP/2005/8/Add.2).

<sup>110</sup> *Id.* Decision 9/CMP.1; Decision 10/CMP.1, para 2(c) (FCCC/KP/CMP/2005/8/Add.2).

types of capacity and function reviews, including spot checks, withdrawals of accreditation, and appeals to the Committee by independent entities of Accreditation Panel recommendations concerning their qualifications and procedural compliance.<sup>111</sup>

There are ten members on the JI Supervisory Committee, elected by the COP/MOP, with fixed-period terms and limitations allowing a total of ten consecutive years of service.<sup>112</sup> Rules on conflict of interest provide that members shall have no pecuniary interest in any JI project, nor in any accredited independent entity.<sup>113</sup>

Designated operating entities under the CDM program have been temporarily authorized to act as Accredited Independent Entities ("AIEs") for JI.<sup>114</sup> There are 26 designated operating entities. The JI Supervisory Committee has now accredited about 15 companies to do validation, verification, and monitoring work, but only 2 to have full authority to clear carbon credits under Track 2 (explained below).<sup>115</sup> These companies are also often the same ones that consult on JI projects and that prepare PDDs.

### **3.6.2 JI rules**

The seventh Conference of the Parties (COP-7) produced the Marrakech Accords in 2001 to establish procedures for the three flexibility mechanisms. The provisions for JI were finalized and made effective at the 2005 COP/MOP in Montreal.

JI projects can be either emissions reductions projects or sink projects. Emissions reductions projects reduce emissions of greenhouse gases, while sink projects, also known

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<sup>111</sup> Joint Implementation Supervisory Committee, Procedure for Accrediting Independent Entities by the Joint Implementation Supervisory Committee (Version 04, effective Nov. 29, 2008), [http://ji.unfccc.int/Ref/Documents/Procedure\\_Accrediting\\_IE.pdf](http://ji.unfccc.int/Ref/Documents/Procedure_Accrediting_IE.pdf).

<sup>112</sup> Joint Implementation Supervisory Committee, Rules of Procedure of the Joint Implementation Supervisory Committee, Rules 4 and 5, <http://ji.unfccc.int/Ref/Documents/Rules.pdf>. Though they serve in their individual capacities, three members are to be from Annex 1 countries with economies in transition, three from Annex 1 countries (non-economies in transition), three from non-Annex 1 countries, and one from a small, developing island state. *Id.*, Rules 3 and 4.

<sup>113</sup> *Id.*, Rule 9. Violation of the rules on conflict of interest are grounds for termination or suspension. *Id.*, Rule 7.

<sup>114</sup> Montreal COP Report, Decision 10/CMP.1, para. 3.

<sup>115</sup> John McGarrity, *JI panel approves SGS as auditor*, Point Carbon News, April 22, 2009.



as Land Use and Land Use Change or Forestry projects ("LULUCF"), enhance anthropogenic removal. The rules exclude nuclear facilities from eligibility for JI.<sup>116</sup>

The rules establish two tracks for verification of JI projects. Countries satisfying minimal requirements – being a party to Kyoto, having a calculated and recorded emissions reduction commitment, and having a national registry of emissions by sources and removals by sinks in compliance with Kyoto Article 7(4) – are eligible to participate in Track 2, in which an AIE verifies that the project is valid and compliant with the rules.<sup>117</sup> Host countries satisfying these rules and additional ones – having a national system for estimation of emissions by sources and removal by sinks in compliance with Kyoto Article 5(1), submitting of the most recent annual inventory in compliance with Articles 5(2) and 7(1), and completing annual inventorying in compliance with Article 7(1) – are eligible to use Track 1.<sup>118</sup> Track 1 is also known as "fast track JI" because "standards are more flexible, external third-party determination is not a requirement, and procedures for baselines and monitoring are set by the national guidelines of the host country, taking into account criteria for baseline setting and monitoring" in the rules.<sup>119</sup>

The information describing the proposed JI project, including all information necessary to determine whether the project has the involved Parties' approval, satisfies the requirement of additionality, and has an appropriate baseline and monitoring plan, is to be included in a project development document ("PDD").<sup>120</sup>

Project approvals are deemed final 45 days after the date on which the determination is made public, unless one of the countries involved in the project or three JI Supervisory Committee members request a Committee review.<sup>121</sup> The Committee is to

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<sup>116</sup> Marrakesh Accords, Decision -/CP.7 (Article 6).

<sup>117</sup> Montreal COP Report at 6 – 7.

<sup>118</sup> Montreal COP Report at 6 – 7.

<sup>119</sup> Dane Ratliff, *Joint Implementation: tracking recent developments*, 2 Environmental Liability 56, 58 (2007); Montreal COP Report, Decision 9/CMP.1 Annex at para. 23 - 24.

<sup>120</sup> Montreal COP Report, Decision 9/CMP.1 Annex at para. 31; PDD template at <http://ji.unfccc.int/Ref/Forms.html>.

<sup>121</sup> Montreal COP Report, Decision 9/CMP.1 Annex at para. 35.

give reasons for its determination upon review, and this determination is final and unreviewable.

Similarly, a determination regarding final verification, the last step before carbon credits are awarded, is deemed final fifteen days after the date on which it is made public, unless one of the involved countries or three members of the JI Supervisory Committee request a review.<sup>122</sup> The Committee has thirty days to decide whether to perform a review, and then, if a review is to be done, thirty days more to complete it.<sup>123</sup> The Committee is to explain the outcome of its review and make it public.<sup>124</sup>

In addition to calculating or estimating the project's impact on greenhouse gas emissions or removals (as described below), the project proponent or host country is also to perform an "analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party." If those impacts are considered "significant" by the project participants or host country, an environmental impact assessment must be produced "in accordance with procedures as required by the host Party," and the results included in the PDD.<sup>125</sup> The rules are silent on a situation where the host country has no laws on environmental impact assessment as, in respect of the principle of state sovereignty, precise requirements regarding EIA are left to host state discretion.

These procedures are the ones established for all JI projects. The specific agreements between the JI parties are set in contracts between them.

Kyoto Protocol Article 6 makes no mention of public participation but, under the rules, the process includes an opportunity for comments from "stakeholders," defined as "the public, including individuals, groups or communities affected, or likely to be affected, by the project," after publication of the PDD.<sup>126</sup> This thirty-day comment period is early in the process, before initial project approval ("determination"), but after project design.

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<sup>122</sup> *Id.*, Decision 9/CMP.1 Annex at para. 39.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*, Decision 9/CMP.1 Annex para. 33; PDD template, *supra* note 120, at section F.1.

<sup>126</sup> Montreal COP Report, Decision 9/CMP.1 Annex at para. 1) and 8 (Annex at 32).

Since all JI projects must be approved by both the host country and the funding country, participating countries' domestic laws establish more rigorous public participation standards.<sup>127</sup>

The rules include criteria for baseline setting and monitoring, on which the JI Supervisory Committee has provided guidance.<sup>128</sup> The baseline, crucial for determining additionality and to verify carbon credits, "is the scenario that reasonably represents the anthropogenic emissions by sources or anthropogenic removals by sinks of greenhouse gases that would occur in the absence of the proposed project."<sup>129</sup> It must include all categories of emissions covered by Annex B and all anthropogenic removals by sinks within the project boundary.<sup>130</sup>

For an emissions reduction project, the project boundary "shall" encompass all anthropogenic emissions under the control of the project participants, reasonably attributable to the project, and "significant," while defined on a case-by-case basis "with regard to these criteria."<sup>131</sup>

Baselines may be established on a project-specific basis and/or using a multi-project emission factor.<sup>132</sup> The rules include specifications for "sector-wide baselines," but imply that other "multi-project emission factors" may be acceptable.<sup>133</sup> Sector-wide baselines may be used if "[t]he physical characteristics of the sector justify the application of a standard emission factor across the sector," and/or "[t]he emissions intensity does not vary

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<sup>127</sup> Kyoto Protocol art. 6(1)(a).

<sup>128</sup> Montreal COP Report, Decision 9/CMP.1 Appendix B; Joint Implementation Supervisory Committee, Guidance on Criteria for Baseline Setting and Monitoring Ver. 01, ("JISC Baseline/Monitoring Guidance"), [http://ji.unfccc.int/Ref/Documents/Baseline\\_setting\\_and\\_monitoring.pdf](http://ji.unfccc.int/Ref/Documents/Baseline_setting_and_monitoring.pdf).

<sup>129</sup> Montreal COP Report, Decision 9/CMP.1 Appendix B.

<sup>130</sup> *Id.*

<sup>131</sup> JISC Baseline/Monitoring Guidance at 3. The further guidance on "significant" is "i.e., as a rule of thumb, would each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tons of CO<sub>2</sub> equivalent, whichever is lower." *Id.*

<sup>132</sup> Montreal COP Report, Decision 9/CMP.1 Appendix B; JISC Baseline/Monitoring Guidance at 5.

<sup>133</sup> JISC Baseline/Monitoring Guidance at 5.

significantly across the sector.”<sup>134</sup> Use of sector-wide baselines is attractive to make both common types of projects and those with diffuse efficiency gains more feasible. The most discussed types of sector-wide baselines are those for district heating systems in Eastern Europe, electricity, and diffuse energy efficiency projects.<sup>135</sup>

For project-specific baselines, use of methodologies approved by the CDM Executive Board is available, but the only requirement is the satisfaction of the criteria set in the Montreal COP report.<sup>136</sup> The additional substance of these criteria are transparency ”with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors”; ”taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector”; ”taking account of uncertainties and using conservative assumptions”; and prevention of carbon crediting for ”decreases in activity levels outside the project activity or due to force majeure.”<sup>137</sup> The JI Supervisory Committee provides additional guidance only as to ”key factors.”<sup>138</sup>

Key factors that affect a baseline shall be taken into account, e.g.:

- (a) Sectoral reform policies and legislation;
- (b) Economic situation/growth and socio-demographic factors in the relevant sector as well as resulting predicted demand. Suppressed an/or increasing demand that will be met by the project can be considered in the baseline as appropriate (e.g. by assuming that the same level of service as in the project scenario would be offered in the baseline scenario);
- (c) Availability of capital (including investment barriers);

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<sup>134</sup> *Id.*

<sup>135</sup> *E.g., Possibilities for Standardized Baselines for JI and the CDM: Chairman’s Recommendations and Workshop Report*, UNEP/OECD/IEA Workshop on Baseline Methodologies, July 2001  
<http://uneprioe.org/baselinelworkshop/WsReport.pdf>

<sup>136</sup> *Id.*

<sup>137</sup> Montreal COP Report, Decision 9/CMP.1 Appendix B.

<sup>138</sup> JISC Baseline/Monitoring Guidelines at 6.

- (d) Local availability of technologies, skills and know-how and availability of best available technologies in the future;
- (e) Fuel prices and availability;
- (f) National and/or subnational expansion plans for the energy sector, as appropriate;
- (g) National and/or subnational forestry or agricultural policies, as appropriate.<sup>139</sup>

To demonstrate the additionality of the JI project a methodology approved by the CDM Executive Board may be used, the latest additionality tool approved by the CDM Executive Board may be used<sup>140</sup>, or "traceable and transparent information" showing the validity of the baseline, that the project is not part of the baseline, and that the project "will lead" to emissions reductions or removals may be provided.<sup>141</sup> Alternatively, additionality may be shown by provision of "traceable and transparent information that an accredited independent entity has already positively determined that a comparable project (to be) implemented under comparable circumstances (same [greenhouse gas] mitigation measure, same country, similar technology, similar scale)" would result in emissions reduction or removals, and "a justification why this determination is relevant for the project at hand."<sup>142</sup>

"Leakage," defined as "the net change of anthropogenic emissions by sources and/or removals by sinks of [greenhouse gases] which occurs outside the project boundary, and that can be measured and is directly attributable to the JI project," is to be assessed and "calculated," presumably for consideration along with the baseline, or "neglected."<sup>143</sup> No rules or guidance for when leakage can be neglected are provided.<sup>144</sup>

The rules require a monitoring plan that satisfies certain criteria: collection and archiving of all relevant data necessary for estimating or measuring emissions and/or

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<sup>139</sup> *Id.*

<sup>140</sup> CDM Executive Board, Methodological Tool "Tool for the demonstration and assessment of additionality," EB 39 Report Annex 10, <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v5.2.pdf>

<sup>141</sup> JISC Baseline/Monitoring Guidance at 11.

<sup>142</sup> *Id.*

<sup>143</sup> JISC Baseline/Monitoring Guidance at 4.

<sup>144</sup> *Id.*

removals, as well as baseline; leakage; collection and archiving of information on environmental impacts, "in accordance with procedures as required by the host Party"; quality assurance and control procedures; and documentation of all steps involved in these calculations.<sup>145</sup> Methodologies approved by the CDM Executive Board are optional.<sup>146</sup> The JI Supervisory Committee provides guidance on monitoring plan contents and format.<sup>147</sup> "The indicators, constants, variables and/or models used shall be reliable (i.e. provide consistent and accurate values) and valid (i.e. be clearly connected with the effect to be measured), and shall provide a transparent picture of the emission reductions or enhancements of net removals (to be) monitored."<sup>148</sup> However, "[d]efault values, may be used, as appropriate [sic]. In the selection of default values, accuracy and reasonableness shall be carefully balanced. The default values chosen should originate from recognized sources, be supported by statistical analyses providing reasonable confidence levels and be presented in a transparent manner."<sup>149</sup> Revisions to the monitoring plan are subject to approval.<sup>150</sup> Implementation of the monitoring plan is required for JI project verification.<sup>151</sup>

Once a JI project is approved, it is monitored, and then resulting emissions reductions or enhancements of net removals are calculated or estimated.<sup>152</sup> "Reductions of anthropogenic emissions by sources or enhancements of net anthropogenic removals by sinks of greenhouse gases generated by [JI] projects are estimated/calculated by comparing the quantified anthropogenic emissions by sources or net anthropogenic removals by sinks within the project boundary in the baseline scenario with those in the project scenario and adjusting for leakage."<sup>153</sup> Two ways to conduct the pre-adjustment for leakage

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<sup>145</sup> *Id.* at 12 – 13.

<sup>146</sup> *Id.* at 8.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* at 9.

<sup>149</sup> *Id.*

<sup>150</sup> Montreal COP Report, Decision 9/CMP.1 Appendix B.

<sup>151</sup> *Id.*

<sup>152</sup> JISC Baseline/Monitoring Guidance at 12.

<sup>153</sup> *Id.*

”estimation/calculation” are allowed: ”[a]ssessment of emissions or net removals in the baseline scenario and in the project scenario” (”estimating/calculating” both the emissions or removals within the project boundary and those in the baseline scenario and taking the difference), or ”[d]irect assessment of emission reductions” (”direct estimation/calculation of the difference between the anthropogenic emissions by sources within the project boundary in the baseline scenario and in the project scenario”).<sup>154</sup>

The final step, if monitoring and ”estimation/calculation” confirms emissions reductions or removals, is verification by either the host country (Track 1) or the AIE (Track 2), and then entry of the carbon credits in the UNFCCC registry.

### **3.7 Joint implementation in practice**

#### **3.7.1 JI to date**

Approximately 188 project development documents (”PDDs”) for JI projects were submitted to UNFCCC for proposed projects. JI is off to a slower start than CDM, which has more than 4,200 projects in the pipeline and about 1,700 registered projects, because JI did not benefit from the ”prompt start” provisions as did CDM and because the countries with the greatest JI potential – Russia and Ukraine – were slow to develop their approval frameworks.<sup>155</sup> The majority of the listed JI projects are now hosted by Russia (approximately 53%) and Ukraine (approximately 18%), though Russia did not have finalized rules about JI approval until January 2008.<sup>156</sup> Other host countries include Poland, Lithuania, Bulgaria, Estonia, Hungary, Germany, Slovakia, Latvia, Czech Republic, and Romania. Presumably recognizing inability to domestically meet Annex B commitments, the most active JI carbon credit buyers have been EU governments and

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<sup>154</sup> *Id.*

<sup>155</sup> Kyoto Protocol art. 12(10) authorized carbon credits for emissions reductions from CDM projects starting in 2000, and there is no comparable provision for JI. *See* fn. 108 above. The Russian Federation adopted JI project approval procedures on May 28, 2007. Anna Korppoo and Arild Moe, *Russian JI Procedures Adopted, but Work still Remains to be Done*, Joint Implementation Quarterly, July 2007, at 4.

<sup>156</sup> *Russia gives green light to JI*, carbonpositive Jan. 31, 2008, <http://www.carbonpositive.net/viewarticle.aspx?articleID=974>.

Japan, though the participation of the private sector is increasing. An average of four PDDs a month were submitted in 2008.<sup>157</sup>

According to the classifications provided by the UNFCCC website, of the PDDs listed, about 46% are in energy industries, 24% in fugitive fuel emissions, 14% in manufacturing, 11% in waste handling and disposal, 7% in mining or mineral production, 6% in energy demand, 5% in energy distribution, and a few projects in fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride, metal production, and transport. The total is more than 100% because some projects fall in multiple categories.

According to the UNFCCC website, public comments were received on only approximately 27 (approximately 16%) of 174 proposed PDDs with closed comment periods (as of June 2009). Of these, no proposed project is shown to have received more than two comments, and a substantial portion of these comments were submitted by government agencies. Projects may receive comments in domestic law-required public participation processes before the PDD comment period, however.

Recent research into JI in Ukraine, for example, found that coal mine methane ("CMM"), industrial energy saving and energy efficiency projects made up more than 90% of the country's JI projects, and that "the major contribution of JI in Ukraine relates to capacity building, and the readiness of the country to participate in international climate policies in the future, rather than the financial and social benefits of JI."<sup>158</sup>

Trade in JI-generated carbon credits increased dramatically from 2006 (21 MT CO<sub>2</sub>e worth 95 million Euro) to 2007 (38 MT CO<sub>2</sub>e worth 326 million Euro) and to 2008 (approximately 71 MT CO<sub>2</sub>e), before dropping in 2009 with the worldwide recession (estimated 40 MT CO<sub>2</sub>e).<sup>159</sup> This trade represents a very small portion (about one percent)

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<sup>157</sup> John McGarrity, *JI monthly update: Six projects submitted*, Point Carbon News, Apr. 1, 2009.

<sup>158</sup> Anna Korppoo and Arild Moe, *Joint Implementation in Ukraine: national benefits and implications for further climate pacts*, 8 *Climate Policy* 305 – 316 (2008).

<sup>159</sup> *Carbon 2008 Post-2012 is Now*, Point Carbon, March 11, 2008, at 4; Point Carbon, *5.9 Gt CO<sub>2</sub>e to trade globally in 2009 – up 20% in volume – estimates Point Carbon*, Feb. 24, 2009

<http://www.pointcarbon.com/aboutus/pressroom/pressreleases/1.1063628>.



of the total world carbon market.<sup>160</sup> Before the financial crisis, Point Carbon reported estimates of 210 million JI carbon credits available by the end of 2012 compared to over 1.5 billion from CDM.<sup>161</sup> JI may become more important in the future, however, if more countries come under binding emissions reduction commitments and thus under JI rather than CDM.<sup>162</sup>

### 3.7.2 Zasyadco coal mine methane project

As of June 2009, only one Track 2 JI project, "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadco," had received final verification, to the amount of approximately 651,000 tons CO<sub>2</sub> equivalent. With a few details, this project can serve an illustrative example for further discussion.

The Zasyadco project uses methane recovered from a large complex of four underground coal mines in Donetsk, in eastern Ukraine, for production of electricity, heat, and vehicle fuel, primarily for mine operations.<sup>163</sup> The Zasyadco mine complex is one of the most productive in Ukraine, at approximately three billion tons/year.<sup>164</sup> Due to the hazard of underground methane explosion, Ukrainian law requires that coal mine methane ("CMM") be vented from mines, but not productively used.<sup>165</sup> The Zasyadco mine has a troublesome history of methane explosions, with seven serious accidents since 1999 taking the lives of a total of 296 workers, including the worst disaster in Ukrainian mining history, costing 101 miners' lives in 2007.<sup>166</sup>

The purchasers of the carbon credits generated by – and thus the funders of – the Zasyadco project are the Marubeni Corporation of Japan and VEMA S.A. of

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<sup>160</sup> *Carbon 2008 Post-2012 is Now*, Point Carbon, Mar. 11, 2008, at 4.

<sup>161</sup> Point Carbon, *Economic slump to take increasing toll on JI*, CDM & JI Monitor, Apr. 15, 2009, at 4.

<sup>162</sup> *Id.*

<sup>163</sup> Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadco PDD, <http://ji.unfccc.int/UserManagement/FileStorage/1E3ZT7ZUJQ04TYPH3SBEY8BTBDFIL>.

<sup>164</sup> COALBED METHANE OUTREACH PROJECT, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, GLOBAL OVERVIEW OF CMM OPPORTUNITIES 223 (January 2009).

<sup>165</sup> Zasyadco PDD, *supra* note 163, at 7.

<sup>166</sup> [http://en.wikipedia.org/wiki/Zasyadco\\_coal\\_mine](http://en.wikipedia.org/wiki/Zasyadco_coal_mine).

Switzerland.<sup>167</sup> Marubeni is a large, multinational corporation, with product and service businesses in a broad range of sectors, including pulp and paper, chemicals, energy, metals and mineral resources, and iron and steel products. It is a major purchaser of carbon credits.<sup>168</sup> VEMA produces machinery of various types.

#### **4 Problems with JI**

Many say that the inclusion of the flexibility mechanisms made agreement on Kyoto possible, which was at least important to build momentum for broadly-coordinated international action on climate change.<sup>169</sup> Undoubtedly, JI and CDM have build national and international capacities and fostered personal and institutional connections that will be important for future mitigation efforts, and they have contributed to putting a price on carbon.<sup>170</sup> Flexibility mechanism supporters see JI as a cost-effective means to reduce emissions.<sup>171</sup> However, the flexibility mechanisms are highly controversial and the perceived problems go directly to issues of legitimacy.

A number of the problems with JI can be illustrated through the Zasyadco mine project and that example is used below where applicable. Many of the problems with JI are also problems for CDM and/or IET. Where the problem is common to the three mechanisms, it is discussed in more general terms. For the reasons mentioned above, there has been substantially more action in CDM than in JI, and, thus, more experience upon which to draw for analysis and evaluation. Due to the similarities between the programs, including the wholesale importation of many CDM rules for JI and the JI rules' reliance on guidance and procedures approved for CDM, CDM experience can often illuminate or illustrate JI problems.<sup>172</sup>

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<sup>167</sup> Zasyadko PDD, *supra* note 163, at 3.

<sup>168</sup> Hisane Misaki, *Marubeni signs exclusive carbon deal with Gazprom*, Point Carbon News, May 15, 2009.

<sup>169</sup> *See, supra* text accompanying notes 94 and 95.

<sup>170</sup> FRANK WIGEN AND KEES ZOETEMAN, FINAL REPORT OF THE STUDY 'PAST AND FUTURE OF THE KYOTO PROTOCOL' 9 (Globus 2004) <http://www.tilburguniversity.nl/globus/publications/04.01.pdf>

<sup>171</sup> Stern Review at 371, 376.

<sup>172</sup> *Compare* Montreal COP Report, Guidelines for the implementation of Article 6 of the Kyoto Protocol, Decision FCCC/KP/CMP/2005/8/Add.2 9/CMP.1 to Montreal COP Report, Decision 3/CMP.1 Modalities and Procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol

JI problems fall in four categories: 1) mistargeting; 2) commodification and privatization; 3) impenetrability; and 4) unknowable information.

#### **4.1 Mistargeting**

JI is not designed to lead and does not lead to the key goal for global warming mitigation – transition to a low carbon society.<sup>173</sup> In fact, JI may actually delay the measures necessary for this transition. As is true of the Kyoto flexibility mechanisms generally, the aim of JI is not to leave fossil fuels in the ground, but rather to allow developed countries to assert compliance with Annex B commitments at the lowest cost.<sup>174</sup> There are several aspects to this.

##### **4.1.1 Short-sightedness**

The premise of the flexibility mechanisms is that all emissions reductions made today are equal, no matter where or by whom they are made. Under JI, to take the Zasyadco example, emissions cuts made at the mine in Donetsk are considered equivalent to emissions cuts that could be made at Marubeni or VEMA facilities in Japan or Switzerland. In a sense – in the limited context of meeting emissions reductions goals in the present moment – this is a totally valid perspective. However, with a broader view it is much less valid. The JI project changes made at the previously more inefficient Zasyadco mine are made with well-known technology that Ukrainian regulators concerned with emissions reductions should arguably require Zasyadco to implement as industry standards progress. These are relatively inexpensive changes, and this is why it makes sense for

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FCCC/KP/CMP/2005/8/Add.1. This comparison reveals that the CDM rules are more detailed and restrictive in significant respects.

<sup>173</sup> E.g., Larry Lohmann, *Financialization, Quantism and Carbon Markets: Variations on Polyanian Themes* 28 (draft paper for New Political Economy) available at <http://www.thecornerhouse.org.uk/pdf/document/FQCM.pdf> Lohmann (“Carbon credit investors in the financial sector, who today dominate the buyers side [], have also been repeatedly explicit that offset economics does not select for a transition away from fossil fuels.”); United States Government Accountability Office, *Observations on the Potential Role of Carbon Offsets in Climate Change Legislation*, Testimony before the Subcommittee on Energy and Environment, Committee on Energy and Commerce, House of Representatives (March 5, 2009) at 8.

<sup>174</sup> Baldwin, *supra* note 81, at 207.

Marubeni and VEMA to fund this JI project instead of reducing emissions at their own facilities. Of course, the implementation of better technology at Zasyadco represents an environmental improvement, but it leads to nothing else. If no flexibility mechanism transaction was available to allow Marubeni and VEMA – and Japan and Switzerland – to meet their emissions reductions commitments in this way, they would instead be forced to make cuts at their domestic facilities. This might have entailed the development of new renewable energy technology, a radical new way of organizing social life, or some other innovation that could lead the way to greatly multiplied emissions reductions in the future.<sup>175</sup>

JI's equal treatment of emission cuts no matter where or how they occur results in the cheapest cuts being made first, thus potentially delaying progress on the key mitigation strategy – transition from carbon energy-based societies. Instead of encouraging long-term investment, innovation, and societal restructuring, which are necessary if we are going to become a society that leaves carbon fuel in the ground, JI favors dispersed, expedient measures.

#### **4.1.2 Discouraging innovation**

The economic argument that the flexibility mechanisms provide incentive for additional innovation and greater emissions cuts, as companies that can make greater cuts at relatively low cost can sell emissions credits for profit, appears suspect.<sup>176</sup> While some polluters may have such incentive, others will have an incentive to forgo making cuts or investing in innovation since they can simply buy carbon credits.<sup>177</sup> It is compellingly argued that emissions trading schemes like the flexibility mechanisms provide "equal measure of under-compliance and over-compliance incentives, inducing less innovation

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<sup>175</sup> The benefits of innovation to others and to society as a whole have been termed "spillovers." David M. Driesen, *Sustainable Development and Market Liberalism's Shotgun Wedding: Emission Trading Under the Kyoto Protocol*, 83 Ind. L. J. 21, 47 (2008). "Rational actors in the carbon markets will take direct carbon benefits into account as they choose projects, but they will not necessarily take into account projects' positive spillovers." *Id.* at 52; *see also*, Stern Review at 398.

<sup>176</sup> Baldwin, *supra* note 81, at 198 – 99; Driesen, *supra* note 175, at 53.

<sup>177</sup> David A. Malueg, *Emissions Credit Trading and the Incentive to Adopt New Pollution Abatement Technology*, 16 J. of Env'tl. Econ. and Mgmt. 52 (1989).

than a performance-based standard to which everyone has an incentive to comply.”<sup>178</sup> Emissions trading tends to favor low-cost solutions, which are more “cost-efficient” only in the short-term, at the expense of solutions that are environmentally (and economically) more efficient in the long-term.<sup>179</sup> For example, Marubeni and VEMA have no need to innovate because they can make a relatively cheap investment in known technology at Zasyadco. “Emissions trading provides inferior incentives for relatively expensive innovation because emissions trading lowers the cost of routine compliance.”<sup>180</sup>

Many industry and government supporters of the flexibility mechanisms recognize this. For instance, in 2005, “leaders of major global companies representing a broad range of industries” released a statement favoring market approaches to global warming that recognized that “the primary effect of such mechanisms is to promote efficiencies in energy use or manufacturing processes; they are less likely to stimulate major technological changes or breakthroughs.”<sup>181</sup>

#### **4.1.3 Encouraging host countries’ resistance to tightened commitments**

Related is the concern that JI is likely to make future emissions reductions in host countries more expensive, as JI transactions will take up most cheap emissions reductions opportunities.<sup>182</sup> Raising the price of future emissions reductions in JI host countries may well have the effect of raising their resistance to future tightening of emissions commitments. Ukraine itself can not take advantage, for example, of the relatively easy efficiency improvement at Zasyadco to meet potentially tightened future emissions limitations, making the country more likely to resist more stringent caps.

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<sup>178</sup> *Id.*; Margaret Taylor et al., *Regulation as the Mother of Invention: The Case of SO<sub>2</sub> Control*, 27 *Law and Policy* 348, 372 (2005); David M. Driesen, *Does Emissions Trading Encourage Innovation?*, 33 *ELR* 10094 (2003); Driesen, *supra* note 175, at 53.

<sup>179</sup> Driesen, *supra* note 178, at 10097;

<sup>180</sup> Driesen, *supra* note 175, at 54.

<sup>181</sup> Statement of the G8 Climate Change Roundtable Convened by the World Economic Forum in Collaboration with Her Majesty’s Government, United Kingdom, Jun. 9, 2005, [http://www.weforum.org/pdf/g8\\_climatechange.pdf](http://www.weforum.org/pdf/g8_climatechange.pdf).

<sup>182</sup> Driesen, *supra* note 61, at 49.

#### **4.1.4 Perverse incentives for host countries – disincentive to regulate**

Some of the incentives provided through JI can only be considered perverse and counterproductive. Countries with less efficient infrastructures, which are the hosts or potential hosts for JI projects, have a disincentive to regulatorily mandate increased efficiency. If a host country's law requires an improvement at a facility that would otherwise be a project for JI carbon credits, it will be much more difficult to demonstrate additionality. If the law requires the improvement, resulting emissions reductions become part of the baseline and can not be considered the additional result of a JI project. Host countries will not want to enact such efficiency-improvement regulation because to do so would thus limit potential JI capital inflows. An analogous issue is currently at play with proposed domestic greenhouse gas mitigation legislation in Brazil, which opponents claim will hamper the ability to show the additionality of CDM projects in that country.<sup>183</sup>

For instance, the CMM cogeneration technology, one kind of which the Zasyadco JI project employs, is readily available technology increasingly used (though not currently required) in developed countries for power generation, district heating, boiler fuel, town gas, and in natural gas pipeline systems.<sup>184</sup> To do its part for global warming mitigation, it may well be sensible for Ukraine, the world's third largest emitter of CMM, to at some point legally mandate implementation of such cogeneration technology.<sup>185</sup> JI provides Ukraine with an incentive not to require this technology so that Ukrainian mines can continue to attract JI investment like the Zasyadco mine did. Such incentive conflicts with the objective of the UNFCCC.

#### **4.1.5 Path dependency**

Path dependency is the "tendency of past or traditional practice or preference to continue even if better alternatives are available."<sup>186</sup> JI can create path dependency by keeping unsustainable operations in business further into the future than they would continue with JI investment. The Zasyadco JI project may provide an excellent example of

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<sup>183</sup> Tim Hirsch, *Brazilian minister defends new offset law*, Point Carbon News, May 11, 2009.

<sup>184</sup> COALBED METHANE OUTREACH PROGRAM, *supra* note 164, at xxix – 2.

<sup>185</sup> *Id.* at xxviii.

<sup>186</sup> <http://www.businessdictionary.com/definition/path-dependency.html>

this, as the financial projections for the project show the mine suffering financial losses until the mine begins to receive money from the JI transaction.<sup>187</sup> If the JI project income is what allows the Zasyadco mine to be profitable and continue operating, we must ask whether prolonging coal mining is consistent with the UNFCCC objectives. It is not.

The major problem underlying climate change is the developed world's dependency on carbon-based energy and the rapid growth of the developing world, especially China and India, along this same path. The objective of the international climate change effort should be to shift the world off of such a carbon energy paradigm. The flexibility mechanisms are not directed to this end and instead allow our carbon path dependency to continue and, in some cases, deepen.

It is worth noting that data show greenhouse gas emissions from industrialized countries continuing to rise – at 1% in 2007, for example.<sup>188</sup> Increases in the United States, Canada, and Japan are a major factor in this.<sup>189</sup> Japan, for example, with a rise of 2.3% in 2007, is significantly above its Annex B reduction target but may be able to satisfy its Annex B commitment through use of JI, CDM, and IET.<sup>190</sup> Thus, JI may be deepening Japan's path dependency and hampering its transformation.

#### **4.1.6 Relation of mistargeting to legitimacy**

The mistargeting problems are serious ones with regard to substantive legitimacy. These problems all go to the effectiveness of JI at achieving the Kyoto Article 3 objective. Very significantly, as JI results in postponement of emissions reductions and structural change in the most advanced and richest countries, it flies in the face of the necessary implication of Kyoto Article 3 that the most drastic emissions cuts happen in these countries. This is inconsistent with the leadership principle and with intragenerational

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<sup>187</sup> Zasyadco financial calculation ver5 with CO2\_cor

[http://ji.unfccc.int/JI\\_Projects/DB/DA22OPURGI092XUFLIK0INB5GIYEGA/Determination/TUEV-SUED1207051469.52/historicalDeterminationReport.html](http://ji.unfccc.int/JI_Projects/DB/DA22OPURGI092XUFLIK0INB5GIYEGA/Determination/TUEV-SUED1207051469.52/historicalDeterminationReport.html).

<sup>188</sup> Michael Szabo and Alister Doyle, *Rich nations greenhouse gas emissions rise in 2007*, Reuters Apr. 24, 2009.

<sup>189</sup> *Id.*

<sup>190</sup> *Id.*

equity. Delay in structural change, path dependency, and perverse incentives for host countries all contradict the principle of sustainable development. Only in the narrow senses of facilitating attainment of Annex B emissions reductions commitments at a lower cost and, perhaps, allowing immediate emissions reductions at a lower short-term cost does JI serve the principle of efficiency.

## **4.2 Commodification and privatization**

All of the flexibility mechanisms require dividing the atmosphere into pieces of "right to pollute." They make the international climate change mitigation regime into much more of a property rights scheme than anything else. This raises substantial moral and practical problems concerning fundamental equity and overall efficiency and effectiveness.

### **4.2.1 Creation of wealth**

Although the Marrakech Accord proclaims "that the Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex 1," this is, in reality, simply not so.<sup>191</sup> Carbon credits under all of the flexibility mechanisms have characteristics that make them a type of property right. They are an enforceable claim to do something, i.e., to emit a given amount of pollution. They are enforceable rights to benefit from something, i.e., to make money by trading credits or to be advantaged by having credits that competitors do not. They are tradable. They enable the owner to exclude others from their use. "Certainly as to ownership, and legal title, is fundamental both to the success of the market and to ensuring that the value of the resource is realized by those entitled to it."<sup>192</sup>

Kyoto's dependence on the flexibility mechanisms creates huge wealth, which is given, mostly free of charge, to polluting nations and industries. In the Kyoto-inspired EU ETS, for example, Europe's largest industrial carbon emitter, German power company RWE, received a windfall of about \$6.4 billion in the first three years of the EU ETS, and

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<sup>191</sup> Marrakech Accords, Decision -/CP.7 (Mechanisms).

<sup>192</sup> Richard L. Sandor, et al., *An overview of a free-market approach to climate change and conservation*, in CAPTURING CARBON AND CONSERVING BIODIVERSITY, THE MARKET APPROACH 57 (ed. by Ian R. Swingland, Earthscan Publications, Ltd., 2002).



German industries as a whole were enriched in an amount estimated as high as \$374 billion.<sup>193</sup> Another German power company made a €650 million profit through EU ETS trading in 2008, and, unsurprisingly, promotes expansion of emission and offset trading.<sup>194</sup> Undeniably, wealth creation forms part of the motivation for perpetuation and expansion of the flexibility mechanisms.<sup>195</sup> At the start of Kyoto, the parties handed out – to just the Annex 1 countries – more rights to emit greenhouse gases than can be allowed in total if the UNFCCC stabilization goal is to be attained.<sup>196</sup> The value of these carbon credits has been estimated at as much as two trillion dollars.<sup>197</sup> Although the carbon credits created in this round and, subsequently through JI, are of limited temporal duration, they represent property that will not be readily given up by the wealthy polluters, nations and others, who hold them.

#### 4.2.2 Allocation struggles

If the basic Kyoto structure including the flexibility mechanisms is to be maintained, allocation struggles are sure to be a main feature of the December 2009 Copenhagen negotiations, as they were at Kyoto in 1997.<sup>198</sup> Such struggles usually result

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<sup>193</sup> James Kantor and Jad Mouawad, *Money and lobbyists hurt European efforts to curb gases*, New York Times, Dec. 10, 2008.

<sup>194</sup> John McGarrity, *E.On urges global carbon trading scheme*, Point Carbon News, May 4, 2009.

<sup>195</sup> E.g., Lisa Friedman, *Countries look to U.S. firms for Kyoto development*, ClimateWire, Mar. 24, 2008 (quoting U.S. House Select Committee on Energy Independence and Global Warming spokesman: “American companies have a lot of catching up to do.” “If they key into the carbon market now, they can make a ton of money in the future.”)

<sup>196</sup> “Most commentators agree ... that the Kyoto ‘targets were arrived at through negotiations, rather than a process of defining and applying specific, transparent, criteria.’ by requiring only modest cuts from current emissions levels (and in some cases, allowing increases), the Kyoto targets appear to sanction grandfathering as a formula for allocation of emission entitlements.” Farhana Yamin, *Equity, entitlement, and property rights under the Kyoto Protocol: the shape of ‘things’ to come*, 8 Rev. of Eur. Comm. and Int’l Envtl. L. 265, 267 (1999).

<sup>197</sup> DAVID G. VICTOR, *THE COLLAPSE OF THE KYOTO PROTOCOL AND THE STRUGGLE TO SLOW GLOBAL WARMING* 50 (Princeton University Press, 2001).

<sup>198</sup> Yamin, *supra* note 196, at 267 (discussing disparate USA and Brazilian “objective” approaches to equity and entitlements at Kyoto).

in over-allocation, as they did in the Kyoto negotiations and in the development of the EU ETS.<sup>199</sup>

### 4.2.3 Rent-seeking

The flexibility mechanism-based Kyoto system invites "rent-seeking behavior":

[t]he expenditure of resources in order to bring about an uncompensated transfer of goods or services from another person or persons to one's self as the result of a 'favorable' decision on some public policy. ... Examples of rent-seeking behavior would include all of the various ways by which individuals or groups lobby government for taxing, spending and regulatory policies that confer financial benefits or other special advantages upon them at the expense of the taxpayers or of consumers or of other groups or individuals with which the beneficiaries may be in economic competition.<sup>200</sup>

The "rents" at stake in JI and the other flexibility mechanisms are enormous. Indeed, the international carbon market is pegged by the financial industry as "the world's biggest commodity market, and it could become the world's biggest market overall," as well as "one of the fastest-growing markets ever, with volumes comparable to credit derivatives within a decade."<sup>201</sup> Many of the same individuals and financial institutional players involved in disastrous derivatives markets are now involved with the carbon market.<sup>202</sup>

Climate change is seen as an example of market failure<sup>203</sup> - the wisdom of relying on a particularly artificial and manipulatable market for mitigation seems highly dubious. It can reasonably be expected that substantial amounts of effort will go into lobbying, lawyering, public relations campaigns, analysis, and other endeavors that have nothing to

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<sup>199</sup> Kantor, *supra* note 193; *see also*, Debra Kahn, *The cap on Waxman-Markley bill could be set too high*, ClimateWire, Apr. 3, 2009 (anticipating over allocation in the perhaps forthcoming U.S. emissions law).

<sup>200</sup> A Glossary of Political Economy Terms by Dr. Paul M. Johnson, [http://www.auburn.edu/~johnspm/gloss/rent-seeking\\_behavior](http://www.auburn.edu/~johnspm/gloss/rent-seeking_behavior).

<sup>201</sup> James Kantor, *In London's financial world, carbon trading is the next big thing*, New York Times, Jul. 6, 2007; *See also*, Friedman, *supra* note 195 (noting that volume of the carbon derivative market was predicted to exceed that of the primary market in 2008).

<sup>202</sup> Lohmann, *supra* note 173, at 13 – 14.

<sup>203</sup> Stern Review at 27.

do with transition to a low-carbon energy society in the course of seeking rents under this system.<sup>204</sup> Exemptions and special rules will be sought, lawsuits will be fought, regulators will be courted and captured, and all of this will be in attempts to maximize profits from the JI system.<sup>205</sup> For example, the former German minister of environment explains that the framework of the EU ETS put governments in the position of behaving like "a grandfather with a large family deciding what to give his favorite grandchildren for Christmas."<sup>206</sup> Carbon market speculators already abound.<sup>207</sup> It is even foreseeable that investments in emissions reductions will be delayed as investors wait for more favorable conditions in the artificial carbon markets as government policies unfold and respond to rent-seeking behavior.<sup>208</sup>

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<sup>204</sup> MICHELE CHAN, SUBPRIME CARBON?: RE-THINKING THE WORLD'S LARGEST NEW DERIVATIVES MARKET 9 (Friends of the Earth, 2009) <http://www.foe.org/pdf/SubprimeCarbonReport.pdf> (noting that the politically generated and managed aspects of carbon markets, along with their compliance aspects, make them "particularly vulnerable to inappropriate lobbying and regulatory capture"); Larry Lohmann, *supra* note 173, at 20.

<sup>205</sup> *E.g.*, Baldwin, *supra* note 81, at 197 – 98 (summarizing rent-seeking behavior in first stage of EU ETS); Jim Estathio Jr. and Kim Chipman, *Carbon-market backers split over Obama climate plan*, Bloomberg, Mar. 19, 2009 (discussing rent-seeking in run-up to United States legislation); Christa Marshall, *Offset provisions in House climate bill draw some heat*, ClimateWire, April 9, 2009 (describing rent-seeking related to proposed offset provisions in proposed US legislation).

<sup>206</sup> Kantor, *supra* note 193.

<sup>207</sup> CHAN, *supra* note 204, at 4. Richard Sandor touts the emerging carbon markets as a means to revitalize financial markets struggling in the current financial crises, and boldly proclaims: "I'd like to put forward the hypothesis that the 21<sup>st</sup> century will be about another type of commoditization, and that is the commoditization of air and water." Nathaniel Gronewold, *CCX's Sandor claims carbon market will save economy*, ClimateWire, Mar. 25, 2009. "These will become far bigger than any traditional commodities we have thought about." *Id.*

<sup>208</sup> Stern Review at 370; Marshall, *supra* note 205 (reporting on carbon investors waiting for certainty under US climate law before financing emissions reductions projects).

#### **4.2.4 Distraction**

Allocation battles and rent-seeking-induced conflicts and maneuvering deduct from the resources, energy, and attention needed from governments, industry, NGOs, and the public to make the difficult and costly transition that is necessary for successful mitigation. Political space needed for education, planning, and movement-building is sucked up by the battle resulting from commodification. Thinking about human rights and considering how to lessen the distorting influence of power imbalances on collective decision-making would be more productive than the distracting focus on markets, carbon trading instruments, and money.<sup>209</sup> Real, compelling human stories about Arctic peoples losing their subsistence cultures, island nations threatened with submersion, or Bangladeshi environmental refugees, among others, have little place in discussion of flexibility mechanisms.

#### **4.2.5 Relation of commodification and privatization to legitimacy**

The commodification and privatization problems are all about substantive legitimacy. The creation of wealth problem can be seen to violate all of the equity-based principles. It is repugnant to any notion of equity that polluters profit from a scheme purportedly intended to reduce pollution. The violation of the polluter pays principle is the most direct – here, the polluters get paid and then buy their way out of making difficult changes for climate change mitigation.

The allocation and rent-seeking problems tend to make JI ineffective by creating a lot of unproductive activity and creating a drag on the design benefits of the flexibility mechanisms. Only in a perverted sense is money and effort that polluters spend on allocation struggles and rent-seeking part of the treaty's notion of "cost-effective." All of the gamesmanship – rent-seeking, allocation battles, and controversy about flexibility mechanism rules – in reality has little to do with the core problem. By directing energy and attention to these things, JI plays a role in diverting efforts to address climate change on the level of human rights. Not only do human rights suffer from the results of climate change that JI fails to help stem, but they also struggle with the lack of oxygen from the flexibility mechanisms' heavy breathing.

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<sup>209</sup> Amy Sinden, *Climate Change and Human Rights*, 27 J. Land Resources & Envtl. Law 255, 271 (2008).

### 4.3 Unknowable information

High monitoring, reporting, and verification standards are crucial for the success of carbon trading schemes,<sup>210</sup> yet JI depends on unknowable information. The monitoring and quantification required is not possible at current levels of technological sophistication. Even with improved monitoring abilities, some information upon which the integrity of JI depends will never be knowable with an acceptable level of certainty. These problems are compounded by substantial potential for cheating and corruption, political resistance to disclosure,<sup>211</sup> and difficulties of enforcement.

#### 4.3.1 Limitations of monitoring

Techniques for measuring carbon dioxide emissions and removals even in the most technologically advanced countries do not have a high degree of accuracy. Climate change expert Steve Rayner asserts that flexibility mechanisms "rely on underdeveloped monitoring and accounting systems that inevitably leave plenty of wiggle room for unscrupulous speculators to work the system, amassing fortunes while achieving nothing for the atmosphere."<sup>212</sup> One author estimates uncertainty rates for worldwide emissions, noting that national measurements are typically more uncertain (except for fossil fuel CO<sub>2</sub>).<sup>213</sup> These worldwide uncertainty rates range from a low of ten per cent for CO<sub>2</sub> emissions from combustion of fossil fuels up to over one hundred per cent for some methane sources.<sup>214</sup> Measurement deficiencies are partially responsible for the

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<sup>210</sup> Stern Review at 382.

<sup>211</sup> Lisa Friedman, *Huge gaps in data from developing countries*, ClimateWire, Mar. 24, 2009 ("Throughout the developing world, emissions data remain unreliable, inconsistent and out of date, analysts say." Also, pointing out that China's most recent emissions data submission is for 1994, and that China opposes independent verification of its statistics.)

<sup>212</sup> Steve Rayner, *Take Climate Change Seriously*, Wired Magazine Sept. 22, 2008  
[http://www.wired.com/politics/law/magazine/16-10/sl\\_rayner](http://www.wired.com/politics/law/magazine/16-10/sl_rayner).

<sup>213</sup> VICTOR, *supra* note 197, at 58.

<sup>214</sup> *Id.*; see also, Appendix C, "Uncertainty in Emissions Estimates," *Emissions of Greenhouse Gases in the United States*, DOE/EIA-0573(98) (Washington, DC, October 1999)  
<http://www.eia.doe.gov/oiaf/1605/archive/gg00rpt/pdf/appendixc.pdf>

overallocation of carbon credits in the EU ETS.<sup>215</sup> While the IPCC is at work to improve national and worldwide inventories, ”no internationally agreed methodologies or rules for estimating the greenhouse gas or CO2 balances at a company level exist, in particular for the purpose of emission trading ....”<sup>216</sup>

#### **4.3.2 Arbitrary equivalencies**

Another substantial measurement uncertainty comes into JI in the form of equivalency. Greenhouse gases are regulated under Kyoto and JI carbon credits are available with respect to all of them. The regulated gases are CO2, methane, nitrous oxide, and three groups of flourinated gases (sulfur hexaflouride, HFCs, and PFCs) . However, Annex B commitments and the flexibility mechanisms all operate only on the basis of tons of CO2 emissions. Emissions or reductions of the other gases are converted, for accounting purposes, into CO2 metric ton equivalents. For example, the value for methane is 23, for nitrous oxide 296, and for HFC-134a 1,300. Thus, a reduction of one ton of methane by a JI project is converted to 23 tons of CO2 emissions reduction equivalent for accounting. These equivalency values are based on calculations with much uncertainty and arbitrariness.<sup>217</sup>

#### **4.3.3 Additionality**

Besides these measurement uncertainties, another very substantial problem lurks. That is ensuring additionality – that the emissions reductions or sink enhancement involved in a JI project would not take place but for the JI project. They are ”additional” to what would happen in the business as usual baseline. It is simply not possible to place a great deal of faith in this additionality concept, which necessarily relies upon proof of a counterfactual – the baseline against which project emissions performance is measured exists only in an imaginary parallel universe, so additionality can never be proven.

A showing of additionality involves comparision of what one hopes will happen with the project to what one guesses would have happened without the project – if one is

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<sup>215</sup> Lohmann, *supra* note 173, at 20.

<sup>216</sup> IPCC National Greenhouse Gas Inventories Programme, FAQ <http://www.ipcc-nggip.iges.or.jp/faq/faq.html>

<sup>217</sup> DOE/EIA-0573(98), *supra* note 214.

honest.<sup>218</sup> The setting of baselines presents many opportunities for cheating that may be particularly hard to detect because of the nature of additionality tests. Determinations of additionality are necessarily subjective because baseline definition always requires choices and assumptions that can not be verified in the real world.<sup>219</sup> It is not possible to reliably determine additionality for this reason.<sup>220</sup> There are many ways to cheat. Baseline scenarios seem easy to fudge. Consultants can troll for companies planning or required to make improvements in efficiency and have them hold off until a JI deal for these same improvements is arranged. Even without malfeasance, additionality rules and tests do not work as well in economies in transition as they would in an established market economy because of a transition economy's unclear rules of the game and the potentially significant impact on decision-making of personal relations or practices leftover from the previous economic system.<sup>221</sup>

The Zasyadco mine project, for example, includes dubious assumptions in its baseline selection and additionality demonstration. The PDD concludes that "continuation of the existing situation which is to vent CMM into the atmosphere, generate heat with the existing boiler, purchase of electricity from the grid and continue fuel the vehicle (sic) with diesel" is the only realistic option for a baseline.<sup>222</sup> The alternative to feed CMM into the existing natural gas pipeline for offsite electricity and heat generation is considered but rejected as a possible baseline because of "absence of prevailing practices to utilize CMM"

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<sup>218</sup> Nick Davies, *The inconvenient truth about the carbon offset industry*, The Guardian, Jun. 16, 2007 (quoting Dan Welch).

<sup>219</sup> Korppoo, *supra* note 158, at 8; Stephen Meyers, *Additionality of Emissions Reductions from Clean Development Mechanism Projects: Issues and Options for Project-Level Assessment*, Ernest Orlando Lawrence Berkeley National Laboratory, July 1999, at 4.

<sup>220</sup> US Government Accountability Office, *International Climate Change Programs: Lessons Learned From The European Union's Emissions Trading Scheme And The Kyoto Protocol's Clean Development Mechanism* Nov 2008 at <http://www.Gao.Gov/New.Items/D09151.Pdf>; Michael W. Wara & David G. Victor, *A Realistic Policy on International Carbon Offsets*, Program on Energy and Sustainable Development, Working Paper #74, Stanford University, April 2008, at 8.

<sup>221</sup> Korppoo, *supra* note 158, at 7.

<sup>222</sup> Zasyadco PDD, *supra* note 163, at 19.

and a high investment requirement.<sup>223</sup> However, the following page of the PDD states that Zasyadco did in fact supply CMM to the natural gas grid of Donetsk in 2006 while implementation of the JI project was delayed.<sup>224</sup> No explanation is provided to reconcile this discrepancy. Had use of the CMM in the Donetsk natural gas grid been considered the baseline instead of the older practice of merely venting the CMM, the emissions reduction figures would presumably been significantly lower, if reductions even continued to exist at all.

A highly questionable financial assumption found in the Zasyadco documentation also illustrates the subjectivity of additionality determinations. The PDD provides an investment analysis to show that the Zasyadco CMM cogeneration project is not financially feasible without JI revenues.<sup>225</sup> A major factor in this is the projected energy cost savings from the cogeneration project.<sup>226</sup> If the net present value ("NPV") of energy savings were high enough, then it would make sense for the mine to undertake the cogeneration project even without JI revenues, leaving very doubtful the project's additionality. For the calculations, the PDD uses 2003 prices for electricity, heat, and gas, and shows a sensitivity analysis projecting project returns if the price of the biggest piece of the energy savings, electricity, increased or decreased by twenty percent.<sup>227</sup> When the price of electricity is projected to increase by this amount, the rate of investment return estimate nearly triples and the NPV, although still shown to be negative, improves by a factor of five.<sup>228</sup> If electricity costs increased enough, the cogeneration project would have a positive NPV and would fail to show additionality through investment analysis. While energy prices paid by the Zasyadco mine are unavailable, there is a good likelihood that they have in fact increased more than twenty percent since 2003, perhaps substantially more, at least if household rates provide any indication. Perhaps due at least in part to the approximate

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<sup>223</sup> *Id.*

<sup>224</sup> *Id.* at 20.

<sup>225</sup> *Id.* at 21 – 24.

<sup>226</sup> *Id.* at 21 – 22.

<sup>227</sup> *Id.*

<sup>228</sup> *Id.* at 22.



quadrupling of the price Ukraine pays to Russia for natural gas, a large component of the source of Ukrainian electricity, household electricity rates increased approximately fifty percent in 2006 alone, even with substantial subsidization.<sup>229</sup>

Empirical studies of the far more numerous CDM projects reveal very troublesome problems with additionality demonstrations. Lambert Schneider published a report in November 2007 for WWF in which he evaluated 93 randomly chosen CDM projects and conducted interviews and a literature survey.<sup>230</sup> Using generous assumptions, the report estimates that for about 40% of the registered CDM projects, additionality is unlikely or questionable.<sup>231</sup> Schneider's literature review cites a survey on long-term prospects of CDM and JI of individuals from business, research, governments, and multilateral and non-governmental organizations, including project developers, in which 71% agreed with the statement that "many CDM projects would also be implemented without registration under the CDM" and 86% affirmed that "in many cases, carbon revenues are the icing on the cake, but are not decisive for the investment decision."<sup>232</sup>

Schneider's study provides detailed analysis of the three types of additionality analysis required by the CDM additionality tool: barrier analysis, investment analysis, and common practice analysis.<sup>233</sup> Schneider rigorously shows barrier analysis, which is based on existence of barriers that would prevent project execution without CDM registration, to be "highly subjective, vague and difficult to validate in an objective and transparent manner."<sup>234</sup> All kinds of vague situations are called barriers and often no explanation is

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<sup>229</sup> ANNA TSARENKO, OVERVIEW OF ELECTRICITY MARKET IN UKRAINE 18 (Center for Social and Economic Research 2007); THE RUSSIAN-UKRAINIAN GAS CONFLICT 5 – 10 (Research Centre for East European Studies 2009).

<sup>230</sup> LAMBERT SCHNEIDER, IS THE CDM FULFILLING ITS ENVIRONMENTAL AND SUSTAINABLE DEVELOPMENT OBJECTIVES? AN EVALUATION OF THE CDM AND OPTIONS FOR IMPROVEMENT 5 (Institute for Applied Ecology, Nov. 5, 2007).

<sup>231</sup> *Id.* at 44.

<sup>232</sup> *Id.* at 40.

<sup>233</sup> *Id.* at 28 – 39.

<sup>234</sup> *Id.* at 34.

provided as to why or as to how CDM registration helps overcome the so-called barrier.<sup>235</sup> Investment analysis, like that for Zasyadco discussed above, is to show that the project is less economically attractive than at least one credible alternative.<sup>236</sup> Among the "highly varied" quality of investment analysis, Scheider found that some projects provide detailed and transparent analysis while others use a "black-box approach," leaving calculations and assumptions unreviewable.<sup>237</sup> Common practice analysis looks at the extent to which the proposed project type has been used in the geographical and sectoral area as proposed.<sup>238</sup> Its main problems are that a threshold for common practice and comparable technologies both remain undefined.<sup>239</sup>

Another empirical study, by Barbara Haya, completed in 2007 for International Rivers, evaluates the additionality of hydropower CDM projects.<sup>240</sup> Looking at Chinese hydropower policy and the timing of dam construction versus CDM timelines, Haya concludes that there should be no question that the majority of Chinese CDM hydropower projects are non-additional.<sup>241</sup>

Another study by Haya found that all four of the sugar mill cogeneration projects examined were to be built with or without CDM project approval.<sup>242</sup> "These CDM project developers seem to view the CDM as a potential additional source of profits for projects they were already planning to build, and the additionality test as a hoop they must jump through to access those funds."<sup>243</sup>

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<sup>235</sup> *Id.* at 30 – 34.

<sup>236</sup> *Id.* at 28.

<sup>237</sup> *Id.* at 37.

<sup>238</sup> *Id.* at 28.

<sup>239</sup> *Id.* at 38.

<sup>240</sup> BARBARA HAYA, FAILED MECHANISM, HOW THE CDM IS SUBSIDIZING HYDRO DEVELOPERS AND HARMING THE KYOTO PROTOCOL (International Rivers Nov. 2007).

<sup>241</sup> *Id.* at 6.

<sup>242</sup> Barbara Haya, Malini Ranganathan, & Sujit Kirpekar, *Barriers to sugar mill cogeneration in India: Insights into the structure of post-2012 climate financing instruments*, 1 *Climate and Development* 66, 77 (2009).

<sup>243</sup> *Id.*

A final study examined various CDM projects in India and found the same kinds of problems that Schneider did.<sup>244</sup> The two detailed case studies performed in this report show that "packaging" – the characterization of the project's additionality in the PDD – is what distinguished between the CDM Executive Board's approval of one non-additional project and its rejection of another.<sup>245</sup>

The JI rules are looser than those for CDM. A close reading of the JI rules reveals that they can render additionality yet more dubious. The three tests required under the CDM additionality tool are not necessary under the JI rules because use of CDM tool is only one of five options available to "demonstrate additionality."<sup>246</sup> A troublesome option is

Provision of traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources or enhancements of net anthropogenic removals by sinks of GHGs ....<sup>247</sup>

Thus, a demonstration of additionality requires only a comparison of emissions in the baseline to projected emissions in the project scenario. The JI rules and guidance require that the baseline "reasonably represent[]" emissions or removals "that would occur in the absence of the proposed project," but include no firm and clear provisions to test whether the proposed project would take place but for JI funding.<sup>248</sup> The comparison of "emissions without project" (baseline scenario) to "emissions with project" (project scenario) needs no determination that the project would not happen without the JI mechanism.

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<sup>244</sup> AXEL MICHAELOWA AND PULLAV PUROHIT, ADDITIONALITY DETERMINATION OF INDIAN CDM PROJECTS (Univ. of Zurich Institute for Political Science).

<sup>245</sup> *Id.*

<sup>246</sup> JISC Baseline/Monitoring Guidance Annex 1 para. 2.

<sup>247</sup> *Id.* para. 2(b)(iii).

<sup>248</sup> JISC Baseline/Monitoring Guidance paras. 10 – 26; Montreal COP Report Decision 9/CMP.1 Appendix B.

#### 4.3.4 Corruption potential

Cross-jurisdictional emissions trading systems may generally encourage weak enforcement and corruption, due to the opportunity for unethical government officials to simultaneously enrich themselves and home-state enterprises.<sup>249</sup> In this light, the notorious corruption in the two countries with the greatest potential to host JI projects, Russia and Ukraine, is alarming. JI presents potential to export corruption from these countries to contaminate Kyoto Annex B accounting worldwide.

Russia's JI approval procedures are "characterized by bureaucracy and vagueness."<sup>250</sup> They provide no firm project requirements and reserve the regulators' right to dismiss projects and withhold carbon credit transfer after project approval for reasons "considered fit by the Russian Government."<sup>251</sup> Regulations of this nature are not, shall we say, designed to discourage corruption.

According to one respected Russian NGO's report, the Russian state itself is "the country's biggest racketeer."<sup>252</sup> Many international organizations have charted the "staggering extent" of corruption in Russia.<sup>253</sup> As of 2008, Russia rates "very weak" overall in the Global Integrity Index.<sup>254</sup>

Administrative and grand corruption are widespread in Ukraine.<sup>255</sup> It is a "country strongly influenced by elite cartels," where the corrupt environment presents "a clear obstacle to future sustainable economic growth and integration into the European Union and world economy."<sup>256</sup> Under-the-table deals, collusion between state officials and

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<sup>249</sup> Baldwin, *supra* note 81, at 201.

<sup>250</sup> Korppoo, *supra* note 155.

<sup>251</sup> *Id.*

<sup>252</sup> *Corruption 'Skyrockets' in Russia*, BBC News, Jan. 20, 2005, <http://news.bbc.co.uk/2/hi/europe/4701633.stm>.

<sup>253</sup> *Id.*

<sup>254</sup> Global Integrity, *Global Integrity Report, Russia: 2008*, <http://report.globalintegrity.org/Russia/2008>.

<sup>255</sup> US Agency for International Development, *Corruption Assessment: Ukraine, Final Report*, Feb. 10, 2006, at iv.

<sup>256</sup> *Id.*

business, and rent-seeking behavior characterize this environment.<sup>257</sup> As of 2007, it rates "weak" overall in the Global Integrity Index.<sup>258</sup>

Though the problems with the baseline-setting for the Zasyadco mine project described above affect both the additionality determination and the calculation of carbon credit numbers, the author is aware of no real evidence of corrupt practices with respect to this project. However, the circumstances of the mine's ownership demonstrate potential. A substantial interest in the Zasyadco mine is controlled by Mr. Yukhym Zvyahiliskyy, who is not only a current Ukrainian MP, but also a former Donetsk mayor and acting Prime Minister of Ukraine.<sup>259</sup> In 1994, Mr. Zvyahiliskyy, a prominent figure in the "Donetsk clan" of powerful regional businessmen, faced an investigation of allegations that he had stolen twenty million dollars, and fled his government post and Ukraine for two years.<sup>260</sup>

Falsification of baseline information, or a little fudging to make improvements to be funded through the JI mechanism appear untenable without it, seems likely in these places. Indeed, the general vulnerability of of baseline and credit systems to data manipulation has been noted, and falsification of documents in the CDM has been alleged based on examinations.<sup>261</sup> In addition, falsification of information about stakeholder consultations has been documented in CDM projects in India.<sup>262</sup> Probably, approval paperwork can be purchased from state regulators.

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<sup>257</sup> Id.

<sup>258</sup> Global Integrity, *Global Integrity Report, Ukraine: 2007*, <http://report.globalintegrity.org/Ukraine/2007>.

<sup>259</sup> Invest-Gazeta, Kiev (in Russian), Jan. 13, 2004, p. 35, as translated by BBC Monitoring Service, Jan. 20, 2004, and reproduced by The Action Ukraine Report, News-Build Ukraine, [http://www.artukraine.com/buildukraine/donetsk\\_reg.htm](http://www.artukraine.com/buildukraine/donetsk_reg.htm); *A Survey of Developments in Poland, Belarus, and Ukraine*, Radio Free Europe, Dec. 10, 2002, <http://www.infoukes.com/rfe-ukraine/2002/1210.html>.

<sup>260</sup> *A Survey of Developments in Poland, Belarus, and Ukraine*, Radio Free Europe, Nov. 26, 2002, <http://www.infoukes.com/rfe-ukraine/2002/1126.html>.

<sup>261</sup> Baldwin, *supra* note 81, at 200; Tom Young, *CDM carbon offset applicant accused of "falsifying documents"*, Business Green, Oct. 2, 2008. <http://www.businessgreen.com/business-green/news/2227429/cdm-applicants-falsifying>

<sup>262</sup> Center for Science and Environment, *Making the cheap development mechanism clean: How?*, 2005 <http://www.cseindia.org/programme/geg/pdf/CDM-presentation.pdf>

#### 4.3.5 Lack of enforcement

The market for JI carbon credits has another aspect that increases the potential for fraud. In a normal market, a buyer has a firm incentive to ensure the appropriate quality of the goods purchased, and that he receives what the seller represented. In the JI market, the buyer has no built-in reason to care about the quality of the "goods," but only that the JI carbon credits are accepted as valid. Both buyer and seller in this market share the incentive to have the JI project count for as many carbon credits as possible.<sup>263</sup> Thus, a fraud prevention mechanism inherent in normal markets is absent in the JI carbon credit market. That less information and resources are available to the watchdog of the system, the JI Supervisory Committee, than to project parties compounds this problem, as does the lack of any Committee record of punishing misconduct.<sup>264</sup>

Indeed, a JI funder has an incentive to invest in a project in a country that is unable or unwilling to accurately measure emissions reductions.<sup>265</sup> With a JI project located in such a country, it is easier to claim higher reductions and obtain more carbon credits or less expensive ones.

In addition, that JI projects are implemented by private sector actors to such a great extent, a novel way to implement international law, highlights the lack of means to enforce international standards and safeguards as a problem.<sup>266</sup> There is no agreement on the extent to which such non-state actors are appropriate subjects of international law.<sup>267</sup> Since the JI Supervisory Committee lacks adequate powers, this enforcement is supposed to take place at the national level. The integrity and quality of JI projects, particularly with respect to long-term impacts on energy policy and to sustainable development, is left to individual host countries' decisions consistent with the principle of sovereignty.

Provisions for enforcement in JI focus on AIE accreditation, which can be suspended or withdrawn if an AIE is found to no longer meet accreditation standards upon

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<sup>263</sup> Driesen, *supra* note 61, at 66 – 67; Voight, *supra* note 50, at 15

<sup>264</sup> Wara, *supra* note 220, at 14.

<sup>265</sup> Baldwin, *supra* note 81, at 201; Driesen, *supra* note 61, at 65 – 66.

<sup>266</sup> Cullet, *supra* note 68, at 112.

<sup>267</sup> Yamin, *supra* note 196, at 272.

JI Supervisory Committee review.<sup>268</sup> Once a JI project carbon credits are verified, they cannot be unverified, although an AIE can be made to acquire replacement carbon credits if it verified JI project carbon credits in excess of amounts provided by the rules as a result of a deficiency for which the AIE's accreditation has been suspended or withdrawn.<sup>269</sup> The problem with this enforcement authority, besides its narrow focus, is in the apparent lack of JI Steering Committee enforcement capacity and the lack of a procedure for initiation of enforcement review.

#### **4.3.6 Relationship of unknowable information to legitimacy**

The unknowable information problems are primarily ones of procedural legitimacy, however they all go also to the effectiveness and environmental integrity of JI. The limitations of monitoring and the arbitrariness of the greenhouse gas warming potential figures tend to make operation of JI opaque to anyone but experts, in addition to their potential impacts on actual achievement of emissions reductions. Even just the apparent potential for corruption, especially when coupled with the deficiencies in enforcement authority, are blows to transparency.

The additionality problems present a particular issue with regard to the precautionary principle as JI's (and CDM's) treatment of additionality inappropriately applies the burden of proof. Unless additionality can be proven with a reasonable degree of certainty, the precautionary principle should operate to prevent a polluter with undiminished emissions from claiming satisfaction of emissions reductions commitments on the basis of a purported offset. Due to the heavy uncertainty involved in additionality, if it cannot be shown that the activity – in this case the undiminished emitting "offset" by a JI or CDM project – can go forward without adverse environmental impact, it should not be permitted. Contrary to the precautionary principle, JI (and CDM) treat the necessarily subjective additionality determination with a liberal benefit of the doubt. In a sense, JI (and CDM) use this fault in burden of proof to partially subvert the broader attempt of the UNFCCC and Kyoto to apply the precautionary principle to the climate change problem as a whole.

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<sup>268</sup> Montreal COP Report, Decision 9/CMP.1 Annex at para. 42.

<sup>269</sup> *Id.* Decision 9/CMP.1 Annex at para. 43.

#### **4.4 Impenetrability**

As a centerpiece of the Kyoto effort, the flexibility mechanisms are simply too complex and opaque to facilitate healthy public participation. The entire process is plagued with a lack of transparency and accountability safeguards. Emissions trading systems generally tend to be especially complex to the point of disabling public participation and leaving them vulnerable to industry lobbying.<sup>270</sup> Emissions trading markets are derivatives markets – somewhat resembling the markets to which are commonly attributed the current financial crisis – and characteristically non-transparent.<sup>271</sup>

The failure of JI to adequately engage the public is evident from the astoundingly low numbers of public comments received on PDDs. As has been noted with respect to CDM as well, NGOs have been fairly inactive in commenting on PDDs.<sup>272</sup> It is no wonder – JI is filled with hyper-technical concepts and jargon, requirements for solicitation of public participation are minimal, and the significance and role of the whole system is hard to grasp.

##### **4.4.1 EIA standards**

The requirements and standards for environmental impact assessment are very loose. There is no standard to determine when environmental impacts are "significant," thus requiring such assessment. "This means that if a country has minimal environmental protection standards, or has good standards with a flexible enforcement, or concludes that a JI project's negative environmental impacts are not significant, JI may be used to finance [greenhouse gas] mitigation projects which may not be sustainable with a view to [non-greenhouse gas] environmental impacts."<sup>273</sup> For instance, two wind power JI projects in

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<sup>270</sup> Baldwin, *supra* note 81, at 204.

<sup>271</sup> CHAN, *supra* note 204, at 2 – 3, 6.

<sup>272</sup> Axel Michaelowa & Katherina Michaelowa, *Does climate policy promote development?*, 84 *Climatic Change* 1, 4 (2007).

<sup>273</sup> *GHG Reduction vs. Nature Protection under JI: the Case of Wind Power Projects in Bulgaria*, *Joint Implementation Quarterly*, July 2007, at 9.



Bulgaria that presented potential for serious adverse impact on Important Bird Areas escaped adequate EIA as facilitated by Bulgarian law.<sup>274</sup>

The JI guidelines do not mention environmental impacts in describing PDD requirements, and PDDs generally pay little attention to the matter.<sup>275</sup> The JISC rules rely too much on host country requirements, and provide no recourse if host country environmental impact assessment laws are violated. In this way, deficiencies in host country requirements are exported to the Kyoto system, certainly to the detriment, in some cases, of Kyoto's sustainable development goals. It is reasonable to think that a similar situation in the CDM requirements contributed significantly to the documented failure of CDM to result in sustainable development.<sup>276</sup> While abstaining from imposing requirements or standards on countries in this regard serves the important principle of sovereignty, it runs the risk of seriously impairing the environmental integrity of JI.

Examination of a number of the PDDs for JI projects recently open for comment, exemplifies the problem. For a project to construct wind power turbines on the Lithuanian coast, no EIA was prepared and impacts on birds, a common concern with facilities of this type, were mentioned only in two brief paragraphs of the PDD with general, conclusorily dismissive statements.<sup>277</sup> For a project to construct a hydropower dam in Russia, no separate EIA was prepared and the PDD includes virtually no information about the river affected.<sup>278</sup> The entirety of the conclusion about significance of the environmental impacts provided in section F.2. of the PDD provides the only references to population resettlement and archeological damage, inviting questions at the very least:

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<sup>274</sup> *Id.*

<sup>275</sup> *Id.*; Montreal COP Report, Decision 9/CMP.1 Annex para. 31.

<sup>276</sup> Christopher Sutter & Juan Carlos Parreno, *Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects*, 84 *Climatic Change* 75 (2007); Nadene Ghouri, *The great carbon credit con: Why are we paying the Third World to poison its environment?*, Mail Online, May 31, 2009.

<sup>277</sup> PDD for Liepynes Wind Power Park Joint Implementation Project, Ref. no. 0178 at 26 – 30 <http://ji.unfccc.int/UserManagement/FileStorage/JWZ0BEIVHKCP3DS6M2NR5UFXQ14G8O>.

<sup>278</sup> PDD for Kashkhatau hydro power plant, Ref. no. 0179 at 37 – 38 <http://ji.unfccc.int/UserManagement/FileStorage/92RCJ0M1UE5T78HAXSPN4VZKI6QWBL>.

On the basis of materials submitted to AIE, it was concluded that the project activities do not produce essential impact on the natural environment. The damage from construction related to resettlement of the population and transposition of archeological valuable (sic) from the flooded territory was reimbursed.<sup>279</sup>

#### **4.4.2 Availability of information**

Project-specific information required to be publicly available, including the PDD upon which stakeholders may comment, need only be provided in English. There is no JI requirement that the information be disseminated in the language used by the locally affected community or stakeholders, and there is no requirement that it be made available in a culturally appropriate and practical way. If stakeholders do not have internet access or pay attention to the UNFCCC JI website, they may miss the opportunity for public comment altogether, even if they can understand English.

Furthermore, the JI rules' exemption from disclosure for confidentiality is quite loose. Any information that project participants designate as propriety or confidential – without need for explanation as to the reason for such designation – remains undisclosed absent the written consent of the provider of the information, except as required by applicable host country domestic law.<sup>280</sup> The only information that may not be withheld as confidential at the discretion of the participants is that used to determine additionality, to describe baseline methodology and its application, and to support an environmental impact assessment.<sup>281</sup> The opportunity to withhold information as confidential may lead some project developers to seek out potential host countries with the least restrictive confidentiality laws.

#### **4.4.3 Lack of judicial review**

JI rules provide no opportunities to stakeholders to seek redress if public information or participation requirements are violated. There is no mechanism allowing

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<sup>279</sup> *Id.* at 38.

<sup>280</sup> Montreal COP Report, Decision 9/CMP.1 Annex para. 40.

<sup>281</sup> *Id.*

stakeholders to register complaints about the procedures, impacts of specific projects, or actions of AIEs.

#### **4.4.4 Rules allow unanswered questions**

The JI Supervisory Committee's additionality guidance's allowance of use of a "comparable project," or sector-wide, additionality determination compounds the fundamental unknowable information projects with the additionality concept.<sup>282</sup> For instance, the questionable methodology used for the Zasyadco JI project may now be available for use by CMM JI projects throughout Russia and Ukraine on the basis of the Zasyadco project approval. Any fudging or false "conservative" assumption built into the initial sector-wide baseline calculation would be carried on to successive projects using that baseline. For the sake of efficiency and getting projects done, the sector-wide baseline concept seems to reduce additionality testing to a mere formality.

In addition, ambiguous guidelines on establishing a project boundary for purposes of baseline setting provide room for fudging. The project boundary must include emission sources that are under the project's control, "reasonably attributable" to the project, and "significant," using a "rule of thumb" that allows exclusion of sources under 2,000 tons of CO<sub>2</sub> equivalent or that average less than one percent (per potentially outside-of-boundary source under consideration) of anthropogenic sources, whichever is lower.<sup>283</sup> These criteria are loosened yet further by the direction to set the project boundary "with regard to these criteria."<sup>284</sup> Even after the substantial subjectivity allowed by this guidance, sources can be excluded from the baseline – for no reason that the guidelines specify – so long as such exclusion is justified.<sup>285</sup> Baseline fudging can be virally compounded through the allowance for use of a "multi-project emission factor" – based on similarity of "sector," but also open to other unspecified similarity.<sup>286</sup>

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<sup>282</sup> JISC Baseline/Monitoring Guidance at 11.

<sup>283</sup> *Id.*

<sup>284</sup> *Id.*

<sup>285</sup> *Id.* para. 13.

<sup>286</sup> *Id.* para. 19.

Measuring and accounting for leakage, greenhouse gas additions or removals that occur outside the defined JI project boundary, is another area with significant potential for slippage in accuracy of the JI accounting system. Only leakage that "can be measured and is directly attributable to the JI project" needs to be included in the JI project's greenhouse gas balance sheet.<sup>287</sup> These are loose standards, for example leaving unanswered questions about the level of effort or expense that must be expended before leakage can be deemed unmeasurable, and how directly "directly attributable" must be. Furthermore, leakage can be "neglected" in unspecified circumstances.<sup>288</sup>

For monitoring, the rules do not specify allowable methodologies and permit use of default values with minimal limitations.<sup>289</sup> Two subtly different methods to calculate emissions reductions are authorized, providing options for maximization of emissions reduction estimates.<sup>290</sup>

"Fast Track JI" removes a number of existing safeguards.

In the case of Track 1, the verification procedure under the [JI Supervisory Committee] is not mandatory. The host country can follow its own national guidelines and procedures for the approval of JI project, verification of the emission reductions, and transfer of ERUs. Thus the additionality of a JI project, quality of the information provided in the PDD, and the methodology used for estimating emissions reductions resulting from the project are evaluated by the host party. This means that a project owner is not obliged to pass the verification procedure under [JI Supervisory Committee] and pay to the [JI Supervisory Committee] for determination of PDD and reductions accrued by the project, nor does it have to abide by [JI Supervisory Committee] methodological guidance.<sup>291</sup>

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<sup>287</sup> *Id.* para. 14.

<sup>288</sup> *Id.* para. 15.

<sup>289</sup> *Id.* paras. 28 and 30.

<sup>290</sup> *Id.*, Annex 2 at para. 2.

<sup>291</sup> Anna Korppoo and Olga Gassan-zade, *Joint Implementation: Looking Back and Forward*, Climate Strategies, Oct. 20, 2008, at 7 (noting also that a PDD is not mandatory under Track 1, depending on host country rules).

In sum, the rules allow plenty of room for creative and crafty JI project consultants to use overly favorable assumptions or otherwise fudge calculations or estimations to make JI project look better than they are, and to hide this manipulation in the complexity of the analysis.

#### **4.4.5 Conflicts of interest**

The JI system is rife with conflicts of interest. Not only do the JI project carbon credit buyers and sellers share an interest in maximizing the number of credits verified for a project, so do the AIEs that verify them under Track 2. An AIE is paid by the project participants and may also be a primary consultant on the project that it verifies. Maximizing JI project carbon credits is good for an AIE's business, so long as it does not suffer accreditation suspension or withdrawal. The accreditation standards include operational requirements designed to prevent conflicts of interest but the declarations and demonstrations required need not be opened to public inspection.<sup>292</sup>

The JI Supervisory Committee rules are insufficient to prevent conflicts of interest for its own board members. The Committee has no guidelines for actual or perceived conflict of interest determination, and issues around arising potential conflicts are left to the discretion of its members. There has been recent controversy over such issues about the workings of the CDM Executive Board, which operates under a conflict rule substantively identical to that of the JI Supervisory Committee.<sup>293</sup> There is evidence that some CDM Executive Board members have given favorable treatment in consideration of proposed CDM projects involving home countries, consultants from home countries, or former employers.<sup>294</sup> The CDM Executive Board operates largely through off-the-record proceedings due to members' fears of prosecution through libel litigation or otherwise, as

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<sup>292</sup> Montreal COP Report, Decision 9/CMP.1 Annex A para. 2.

<sup>293</sup> Nathaniel Gronewold, *Secretive U.N. board awards lucrative credits with few rules barring conflicts*, New York Times, Apr. 7, 2009; compare Rules of Procedure of the Joint Implementation Supervisory Committee, Rule 9, *supra* note 112, to Rules of Procedure of the Executive Board of the clean development mechanism, Rule 9, <http://ji.unfccc.int/Ref/Documents/Rules.pdf>.

<sup>294</sup> Gronewold, *supra* note 293; see also, Lohmann, *supra* note 173, at 34 – 35 (giving examples of conflicts of interest among those in the CDM and other aspects of Kyoto decision-making).

the members have no been provided with no legal protection from retribution by companies with investments at stake.<sup>295</sup> This contributes to the lack of confidence in the Board members' ethical integrity. There is little reason why these same issues would not arise with respect to the operations of the JI Supervisory Committee, though it has substantially less project-specific work than the CDM Executive Board.

#### **4.4.6 Diluting emissions reduction commitments**

On a deeper level, the flexibility mechanisms diminish the degree of international accountability available under the treaties, even removing from consideration all issues concerning additionality.<sup>296</sup> While Annex B establishes meaningful commitments, by allowing an Annex 1 country to satisfy its commitments through emissions reductions (or simple trading under Kyoto Article 17), the flexibility mechanisms cloud any effort at accountability by adding substantial vagueness to what exactly the Annex B commitments mean.<sup>297</sup> To what necessary structural evolution towards a low-carbon society does a developed country commit when it can meet its emissions reductions obligations by paying for offsets in other countries?

#### **4.4.7 Relationship of impenetrability to legitimacy**

The impenetrability problems are mostly but not entirely ones of procedural legitimacy. The consequences of weak standards concerning environmental impact assesment, availability of information, and judicial review are that the basic elements of public participation are unsatisfied. The vagueness of the JI rules and the potential for conflicts of interest really hurt transparency as no outsiders can really see and trust JI decisionmaking. To the extent that emissions reductions commitments are diluted, substantive legitimacy principles of equity, effectiveness, and environmental integrity are implicated. Questions about the relationship of the flexibility mechanisms to justice, equity, and sustainable development are significant ones, and the goal or principle of cost-effectiveness may not override these or other applicable principles.<sup>298</sup>

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<sup>295</sup> Gronewold, *supra* note 293.

<sup>296</sup> Driesen, *supra* note 61, at 59 – 60.

<sup>297</sup> Cullet, *supra* note 68, at 111

<sup>298</sup> Voigt, *supra* note 49.

## **5 Fixing JI's legitimacy**

### **5.1 JI problems are ones of procedural and substantive legitimacy**

JI suffers from a serious legitimacy deficit. Many of the problems described above relate squarely to legitimacy and the principles it comprises. Although as the "little brother" among the three flexibility mechanisms, JI has received scant individual attention, the flexibility mechanisms in general (and CDM in particular) have been subject to scathing criticism and substantial popular objection.<sup>299</sup> People even rally in protest against carbon markets.<sup>300</sup>

Each of JI's problems described above goes directly to one or more principles of procedural and/or substantive legitimacy. Although JI and the flexibility mechanisms may appear to many at first to be a sound basis for a global warming mitigation framework, those who attempt to engage the system or examine it more closely are likely to come away with many questions and doubts.

### **5.2 Possible improvements**

#### **5.2.1 Use of Gold Standard**

The Gold Standard Foundation is a Swiss NGO that certifies carbon credits that meet specified requirements. Gold Standard certification is seen as the highest standard in the world and widely endorsed.<sup>301</sup> The key principle of Gold Standard certification is use of "a bottom-up and integrated approach to project design."<sup>302</sup> The process emphasizes enhanced public participation to identify project impacts with tools such as a sustainable development matrix, stakeholder consultation guidelines, and monitoring plan requirements. It endorses principles of transparency and a conservative approach – EIAs

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<sup>299</sup> e.g., *Green groups pan offsets in House climate bill*, Point Carbon News, May 1, 2009; Matthew Carr, *China, Greenpeace Challenge Kyoto Carbon Trading*, Bloomberg.com, Jun. 19, 2009; LARRY LOHMANN, *CARBON TRADING: A CRITICAL CONVERSATION ON CLIMATE CHANGE, PRIVATISATION AND POWER*, (The Dag Hammarskjold Center 2006); SIMON BULLOCK, MIKE CHILDS, & TOM PICKEN, *A DANGEROUS DISTRACTION: WHY OFFSETTING IS FAILING THE CLIMATE AND PEOPLE: THE EVIDENCE*, (Friends of the Earth 2009).

<sup>300</sup> Emily Beament, *Hundreds of protesters set up 'climate camp'*, The Independent Apr. 1, 2009.

<sup>301</sup> [http://www.davidsuzuki.org/Climate\\_Change/What\\_You\\_Can\\_Do/carbon\\_offsets.asp](http://www.davidsuzuki.org/Climate_Change/What_You_Can_Do/carbon_offsets.asp);

<sup>302</sup> Gold Standard Requirements 2.0 July 2008 at 18,

[http://www.ecofys.com/com/publications/documents/GSV2\\_Requirements\\_20080731\\_2.0.pdf](http://www.ecofys.com/com/publications/documents/GSV2_Requirements_20080731_2.0.pdf).

are required and non-sustainable projects may be rejected.<sup>303</sup> Projects must be shown to provide benefits overall in twelve indicators of sustainable development categories of environment, social development, and economic and technological development.<sup>304</sup> Gold Standard limits acceptable project types to exclude several categories of the most problematic projects: only CO<sub>2</sub>, methane, and/or nitrous oxide projects are allowed, and only renewable energy supply and end-use energy efficiency improvement projects are allowed.<sup>305</sup> Gold Standard does, however, rely heavily on use of approved CDM methodologies, including those for additionality, which have failed to safeguard against dubious projects.<sup>306</sup> It also requires project review by an "independent third party Validator," which must be an appropriately accredited DOE or AIE, which would essentially eliminate "fast track JI" (Track 1), which relies solely on host country validation.<sup>307</sup> Annual verification by a different DOE or AIE is mandatory.<sup>308</sup>

International law could require that JI projects meet Gold Standard requirements by incorporating the requirements into treaty or the JI rules. This would represent a significant improvement for JI by ameliorating a number of its problems, particularly those related to public consultation and input. It would also provide greater assurance that JI projects would contribute to sustainable development.

Key problems would remain, however, even if all JI projects had to meet the Gold Standard. Gold Standard certification does nothing to address issues of additionality and little to relieve mistargeting and commodification and privatization problems.

### **5.2.2 Improving oversight**

Enhancing the role, capacity, and structural integrity of the JI Supervisory Committee could also enhance JI's legitimacy. Committee members could be provided with legal protection from liability for their official actions. Their work could then be

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<sup>303</sup> *Id.* at 36 – 37.

<sup>304</sup> *Id.* at 37.

<sup>305</sup> *Id.* at 27.

<sup>306</sup> *Id.* at 29 and 35.

<sup>307</sup> *Id.* at 43.

<sup>308</sup> [http://www.cdmgoldstandard.org/uploads/file/GS\\_Monitorin\\_Verification.pdf](http://www.cdmgoldstandard.org/uploads/file/GS_Monitorin_Verification.pdf)



performed transparently and, if provided with strengthened conflict of interest rules and mechanisms for conflict review and enforcement, the Committee's credibility would be enhanced. The Committee could be given greater resources, funded through state contributions or increased project fees, and increase expertise and capacity to review projects.

To eliminate conflicts of interest for AIEs who are currently paid by project participants to validate projects, the current AIE functions could be taken over by the Committee. Alternatively, AIEs could be paid by the Committee and assigned at random or through another method that does not give project participants leverage over AIEs' decision-making.

### **5.2.3 Public participation**

Several improvements in the realm of public participation would enhance JI's legitimacy. First, international law could set minimum standards for environmental impact assessment, based on Aarhus and Espoo Convention requirements for when and how to do EIA. Associated with this could be enhanced and timely public notification, better defined opportunities for public comment open to all, and mandatory consideration and response to public comment.

While improvements of this nature may provoke sovereignty-based objections from some treaty parties, the requirements would only apply when a state chooses to participate in JI. It seems appropriate that participation in an optional program established by international law may have such conditions reasonably related to the core of its objectives and consistent with emerging international norms concerning public participation. If countries do not want to follow such requirements for projects within their borders, they would be free to pursue such projects without obtaining carbon credits under the international treaty system. Thus, the impingement on sovereignty is an acceptable one.

Another improvement would be adoption of procedures and institutions to allow members of the public to challenge project approvals to an appellate board and to petition for enforcement in the form of de-certification of carbon credits and/or suspension of rule-breaking AIEs or other actors.

#### **5.2.4 Supplementarity**

The Kyoto supplementarity requirement could be given a firmer, restrictive definition, allowing flexibility mechanism use to satisfy only a small, fixed percentage of Annex B commitments. This would limit the potential damage of flexibility mechanism overuse to the integrity of these commitments, as well, probably, of the other problems they present by putting real limits on overall flexibility mechanism use.

Without other reforms, however, stricter supplementarity could have undesirable consequences for JI and CDM project quality. Stricter supplementarity would limit demand for carbon credits from these projects, increasing emphasis on the cheapest projects – those least likely to be truly additional.<sup>309</sup>

#### **5.3 Can these improvements suffice?**

Taken alone, none of these improvements to JI is likely to satisfactorily resolve JI's legitimacy deficit. Each would leave untouched significant portions of the problems described.

The improvements fall into two broad categories: improving JI, and limiting its use (through a supplementarity standard). None of the improvements gets to the heart of the crucial additionality problem, or to considerations of equity associated with the commodification and privatization problems. Indeed, these problems are inherent in JI and all allocation and offset schemes. Restricting the scale of the flexibility mechanisms through a supplementarity standard could somewhat limit the magnitude of these problems.

From another perspective, adding safeguards may increase complexity, time, uncertainty, and cost to the system, making the process bureaucratic and burdensome and leading to efficiency reductions and losses in the effectiveness of JI to reduce costs.<sup>310</sup> This could be expected to reduce the number of JI projects.<sup>311</sup> JI market and project participants already complain about bureaucracy, slowness, and standards perceived to be rather

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<sup>309</sup> Wara, *supra* note 220, at 20.

<sup>310</sup> United States Government Accountability Office, Observations on the Potential Role of Carbon Offsets in Climate Change Legislation, Testimony before the Subcommittee on Energy and Environment, Committee on Energy and Commerce, House of Representatives (Mar. 5, 2009) at 15.

<sup>311</sup> *Id.*

tough.<sup>312</sup> Transaction costs (costs other than price) are a source of friction that diminish the cost-effectiveness of an emissions trading system.<sup>313</sup> The JI improvements considered here are generally likely to increase transaction costs, potentially greatly, which means that they will be opposed by proponents of JI.

## **6 Conclusion**

The flexibility mechanisms in general and Joint Implementation in particular present many problems that substantially harm their legitimacy. These problems can be categorized as mistargeting, commodification and privatization, impenetrability, and unknowable information. In all, these problems go to every aspect of procedural and substantive legitimacy. As is, Joint Implementation is unlikely to be viewed as a valid way to mitigate global warming and will probably be viewed by many – especially those non-project participants closest to the system – as counterproductive and wrong.

While many of these problems could be addressed by improving JI institutions and rules, some are inherent and can only be somewhat mitigated by limiting JI's scale of use. As one set of improvements will increase transaction costs while the other (supplementarity) places outright limits on the mechanism's use, the improvements will probably be unacceptable to the proponents of flexibility mechanisms. If they are implemented, JI may no longer be sufficiently attractive to project participants to fulfill anyone's desires.

In conclusion, the problems with JI and the flexibility mechanisms are probably too great to achieve both legitimacy and viability. It makes sense to abandon JI in pursuit of other means to mitigate climate change and provide sustainable development for would-be host countries. If Kyoto's current state-allocation and trading framework is to be retained, it seems more promising to shift the focus to green investment schemes, in which money received by a developing or transitioning country for carbon credits is committed to use for emissions reduction or sustainable development. Better yet, the framework could be scrapped and the international effort refocused on mandatory national emissions reduction

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<sup>312</sup> McGarrity, *supra* note 157.

<sup>313</sup> TIETENBERG, *supra* note 79, at 41.

efforts, major state investment in and encouragement of innovation, and North to South resource transfer for sustainable development.

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