JOINT IMPLEMENTATION: INSTITUTIONAL OPTIONS AND IMPLICATIONS

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Summary

The term "joint implementation" (JI) describes a strategy through which countries may meet their commitments under the Framework Convention on Climate Change (FCCC) to reduce greenhouse gas emissions by financing emissions-reducing or sink-enhancing projects outside their own borders. The approach seeks to maximize the cost efficiency of emissions reductions on a global basis. Although the notion of joint implementation was introduced during the Convention negotiations and the treaty references the term, details of how the regime will operate have not yet been decided.

This paper analyzes some of the institutional functions associated with operation of a joint implementation regime. Various conceptions of JI are reviewed, and institutional functions that might promote desired goals are proposed. Options for executing these functions -- which range from a centralized bureaucracy to the participants themselves -- are identified and assessed, particularly in terms of the extent to which they promote the overall goals of JI and the Framework Convention. Among the ideas presented:

- A wide range of potential functions exist for the JI regime, many of which could be assumed by existing or newly created centralized institutions.
- The creation or designation of institutions to perform some functions need not preclude simultaneous development of bilateral arrangements.
- Centralization typically entails costs, but these costs may be offset by gains in economic efficiency and organizational learning.
- Relying on project participants or national governments to execute certain functions may promote more rapid project development and greater innovation.

Introduction

The concept of joint implementation (JI) was introduced early in the climate change negotiations. The term has been used subsequently to describe a wide range of possible arrangements between countries, leading to the implementation of joint projects that seek to reduce emissions of greenhouse gases to the atmosphere or to increase the absorptive capacity of terrestrial and oceanic sinks for these gases. Because marginal costs of emissions abatement could differ widely among countries, JI offers an attractive opportunity to optimize costs on a global basis by enabling implementation of the least expensive options first.

The JI concept was accepted in the negotiations and formally adopted into the text of the Framework Convention on Climate Change, opened for signature in Rio de Janeiro at the Earth Summit and entered into force 21 March 1994. The Convention refers to cooperative arrangements between Parties in Article 3(3),[1] and explicitly provides for them in Article 4(2)(a).[2]

Nevertheless, no specific guidance on the meaning of JI was given in the Convention text, and no operational definition of the term could be agreed to during the negotiations. Since presentation of the original JI idea during the climate treaty negotiations, discussion has focused primarily on criteria -- what types of projects will qualify for credit and the mechanics of crediting reductions against specific obligations. A question attracting less attention is how the design of institution(s) established to manage the JI regime will determine the extent of emissions reductions achieved through JI projects and the degree to which JI supports the processes of sustainable development. Now, as the Intergovernmental Negotiating Committee (INC) prepares for implementation of the Convention and for the first meeting of the Conference of Parties (COP), the importance of developing institutional arrangements for any future regime has become increasingly evident.

Defining Joint Implementation

The simplest definition of JI refers to a cooperative, mutually voluntary agreement between two countries to develop and implement a project aimed at reducing net emissions of greenhouse gases. A broader concept of JI includes a regime in which neither the sources of financial support nor the hosts for projects are limited to national governments. Expansion of the definition in this manner could thus lead to projects which are financed and implemented by private enterprises, regional economic organizations, multilateral funding mechanisms or nongovernmental organizations.

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[1] "[P]arties may implement such policies and measures jointly with other Parties..."

[2] "Efforts to address climate change may be carried out cooperatively by interested Parties."

Objectives of Joint Implementation

The absence of a clear definition of JI in the Convention has led to the emergence of widely varying expectations and goals for the JI regime. Joint implementation programs can be designed to serve many different purposes. There are however, four key objectives for JI under the Climate Convention.

The first objective of any JI program is to **identify and initiate cost-effective opportunities for reducing the rate of atmospheric buildup of greenhouse gases** (GHGs). Since the costs and extent of opportunities for achieving emissions reductions or sink enhancements vary among countries and across regions, a JI regime allows one country to underwrite relevant activities in another country at cost per tonne of avoided net emissions that is lower than that which could be achieved by the first country acting solely within its own borders. Proponents of JI hope that this regime will lead ultimately to inexpensive emissions reductions of a scale required to achieve the goals of the Convention.

The second objective of JI is to **support and encourage sustainable economic and human development.** By influencing the distribution of private capital, JI can help steer investment projects onto the path of sustainable development and emissions reductions. Depending on the percentage of emissions reductions abroad, JI also could be an important force in encouraging reduced emissions in developed countries. Ultimately, the success of JI -- and indeed of the Convention itself -- will be judged by whether it supports national development priorities consistent with sustainability on a global basis.

The third objective of any JI program is to **encourage greater flows of private capital to applications that encourage local economic development through the dissemination of energy-efficient, emissions-reducing, and sink-enhancing technologies.** Indeed, part of the allure of JI is its potential to mobilize additional private resources, significantly more than if reduction projects were undertaken with governmental funds alone. This pool of private capital can improve access to environmentally-friendly emissions abatement technology, much of which is held by the private sector. A measure of the regime's success then, will be its ability to maximize the transfer of existing technologies, and to promote innovative partnerships to co-develop new technologies.

A fourth objective of JI projects is to indirectly **promote other policy objectives** that could be important **at the local, national and regional level.** For example, because emissions of local air pollutants often occur coincident with the emissions of greenhouse gases, JI projects that reduce overall emissions through improvements in energy efficiency or the introduction of clean-burning, alternative fuel technologies will also reduce the emissions of the associated local air pollutants. Similarly, JI projects which enhance greenhouse gas sinks, either by expanding soil conservation programs or afforestation efforts, will both slow the buildup of CO_2 in the atmosphere and generate local benefits in the form of increased food production or heightened forest yields.

Expectations for JI: Judging Performance of the Regime

Achieving an equitable and efficient regime for joint implementation will be a complex undertaking, regardless of what institution or combination of mechanisms are designated by the Conference of the Parties. Realizing the potential of the regime will require a balancing of the interests of those who invest in JI projects and those who act as hosts for these undertakings. It will also involve tradeoffs between the objectives of the JI regime described above. Indeed, the success of any proposed JI regime must be judged simultaneously along many dimensions. The following section identifies five candidate dimensions along which such a regime might be judged.

(1) *Promoting Ease of Entry into the JI Marketplace*

JI can only make a significant contribution to the overall goal of stabilizing atmospheric concentrations if the market for JI projects is open and accessible to many players. For JI to be effective in achieving large net reductions in greenhouse gas emissions, many projects will be necessary, many players must be involved, and many technologies must be applied. No one type of project or technology has the potential alone to make a significant contribution to achieving the objectives of the Climate Convention. Any JI regime must be judged therefore, on the extent to which the proposed institutional structure promotes easy entry into the JI marketplace for new types of technologies and promotes innovative partnerships among enterprises in different countries.

(2) *Minimizing Transaction Costs*

JI projects will be attractive only to the extent that they present a less costly means of achieving net emissions reductions than do the domestic opportunities available in the investing country. The JI regime will encourage investment in JI projects if the "transaction costs" associated with mounting new projects are kept low. Elements of these transaction costs include search costs of finding hosts for investors and vice versa, information costs of designing and negotiating project terms, costs of accrediting the project and monitoring its performance, and costs associated with insuring for liability against project failure.

(3) *Facilitating the Employment of Environmentally-Sound Technology*

Whether the technology employed in JI projects is new or mature, part of the allure of JI is its potential to promote the transfer and co-development of technologies that minimize the damage to both the local and global environment. These technologies -- the backbone of a national or international strategy supporting sustainable development -- are critical to reducing the risks of rapid climate change. The JI regime will be judged in part by its ability to promote such technologies as opposed to recycling conventional polluting technologies that have

contributed to the current state of global risk.

(4) Ensuring Confidence Among Participants: Fulfillment of Financial Obligations and Achievement of Project Goals

Implementation and operation of JI projects are likely to continue over many years. In some cases, the full costs of construction and operation of the JI project will be provided by the investor in advance. In other cases, the investor may provide only capital and pay start-up costs and agree to make additional payments over the life of the project. Responsibility for ensuring that commitments are maintained could be left to project participants or could be managed by an international mechanism. In either case, the regime will not be considered successful unless financial commitments are met and projects are built and operated as conceived.

Another element of the JI regime's credibility among participants will be its treatment of failed projects. Many JI projects will involve little or no experimentation with new technology. The risks of engineering failures in these projects will, therefore, be no greater than would be expected with any other international development project. On the other hand, part of the attraction of JI is that it may promote the development of new technologies and the co-development or refinement of existing ones. Some of the projects involving new technologies will inevitably fail to achieve their goals. One test of the JI regime will be how it deals with liability for such failures.

(5) Ensuring Credibility in the International Arena: Monitoring and Verification

An important component of the JI regime will be provisions made for monitoring individual projects and verifying emissions. These evaluations will be necessary to ensure continued confidence of the international community in the credibility of the JI regime. Monitoring and verification could be the responsibility of participants in the projects. Alternatively, these activities could be conducted by local nongovernmental organizations (NGOs), national governments, or an international mechanism implementing the JI regime.

Although several institutions exist that could perform monitoring and evaluative functions, the difficulties in executing these tasks must not be underestimated. The process of monitoring and evaluation of JI projects implies a complicated arrangement, especially if the JI regime expands to include many hundreds or even thousands of projects. The administrative complexities are complicated by a more fundamental challenge: the JI regime essentially will be called upon to measure invisible gases, and to assess the fulfillment of promises *not* to produce something. Whether the JI regime can credibly provide for comprehensive, systematic and longterm monitoring of project effects will be a critical element in judging the concept's success.

Institutional Functions Within the JI Regime

The previous section laid out some of the dimensions upon which any proposed JI regime might be judged. This section examines the range of functions that might be necessary or desirable in a JI regime, and describes some of the possible institutional arrangements for executing these functions.

Since no operational definition of JI has been agreed to, the range of proposed functions that could be assumed institutionally is undetermined. Any or all potential functions could be assigned to some new centralized, international mechanisms designated to manage the JI regime, assumed by existing institutions including national governments, or performed by participants themselves. JI's management structure could thus fall anywhere on the institutional spectrum -- from intervening hardly at all in JI project development and oversight, to directing the evolution of every JI project.

Accordingly, the discussion below does not presume a rigid sequence of institutional development; rather, it suggests points along the project development and implementation cycle at which institutional support may be necessary or desirable. The range of institutional options for executing suggested functions is also considered. Table 1 on page 7 describes some of the functions that might be necessary to manage the JI regime.

Participants in the JI Regime

There are two classes of participants in the JI regime: 1) countries which are Parties to the Climate Convention; and 2) enterprises that participate in JI projects. The latter could include, for example, banks, private companies, NGOs and subnational entities.

Enterprises will likely participate in projects that are clearly within their principal arenas of expertise, but the institutional role of national governments may vary considerably. A nation could create new domestic institutions or authorize existing ones to perform any or all of the JI functions listed above. Alternatively, governments could act only as rubber stamps for operations carried out by entities within their borders. Some nations, for instance, may choose to become involved with project development and implementation, while others could choose instead to concentrate on monitoring projects so that emission reductions can be claimed in the international regime.

TABLE 1. POTENTIAL INSTITUTIONAL FUNCTIONS

FUNCTION	EXECUTOR	DESCRIPTION
IDENTIFY THE PARTICIPANTS	Bulletin Board	provides investors and hosts a mechanism for finding each other
FACILITATE THE MATCH	Broker	brings together investors and hosts; uses own judgment to propose good matches
ASSIST IN PROJECT DEVELOPMENT	Advisor	provides technical, legal, engineering or economic advice
CERTIFY THE PROJECT	Approver	evaluates whether project meets goals of FCCC, COP guidelines
SYNDICATE THE FINANCING	Packager	offers projects as investment instruments or bundles projects into portfolios, setting the price investors pay for participation
GUARANTEE PROJECT PERFORMANCE	Insurer	assumes responsibility for failed projects
MONITOR PROJECT ACHIEVEMENT	Watcher	monitors ongoing project performance and reports results to COP
VERIFY PROJECT CHARACTERISTICS	Authenticator	verifies reductions and informs COP
RESOLVE DISPUTES	Adjudicator	resolves verification disputes; assigns liability (loss of credits) for failed projects

Facilitating Deals

(1) Identifying the Participants

Because the assortment of potential players in the JI regime are not necessarily known to each other, a mechanism to link potential investors and project hosts was suggested early during the climate treaty negotiations. For example, a simple "bulletin board" could act as a centralized collection point for information regarding potential JI projects and financing. Countries and entities could post and/or elaborate their project interests. Table 2 describes potential advantages and disadvantages of creating such a bulletin board.

Some type of linking mechanism benefits potential players in the JI regime by providing a point of access to information about JI project and financing opportunities. Given that the costs of searching for potential partners and obtaining information about potential projects might be burdensome to individual participants, reducing upfront search and information costs in this way could lower barriers to entry into the JI regime. Consequently, a greater number of entities -- both recipients and investors -- might participate, particularly those interested in small projects where search and information would constitute a larger percentage of total costs.

TABLE 2. IDENTIFYING POTENTIAL PARTNERS

IF CENTRALIZED AMONG ONE OR SEVERAL INSTITUTIONS		IF PERFORMED BY INDIVIDUAL PLAYERS	
+	-	+	-
•reduces search and information costs for individual players ↓ •lower search and information cost reduces barrier to entry ↓ •may attract more players	•administrative costs of maintaining institution may be significant •discourages partnerships involving proprietary information	•no centralized administrative costs	•potentially high search and information costs to individual players •differential distribution of information about project and financing opportunities

Regardless of the size or authority of an institutional "bulletin board," its operation would incur measurable administrative costs. Under one scenario, these administrative costs could be diffused among all bulletin board participants by adding an average amount to the cost of each project. For participants without partners, the added cost to support an institutional mechanism which reduces search costs still is likely to be lower than if those search costs are borne individually. As the number of JI project opportunities increases, the per unit transaction cost of administration might be lowered further.

A mechanism for matching potential investors and hosts could exist in tandem with the development of partnerships formed without involvement with the centralized information mechanism. A strategy which required all JI opportunities to be publicly posted through some institutional mechanism could promote equitable distribution of information among potential participants. And adding entities which have had low search costs to the participants pool could lower aggregate search costs. But for participants who already had identified partners, a posting requirement might raise project costs and delay implementation. Posting might also discourage participation by entities which sought to keep project information proprietary.

(2) Facilitating The Match

Beyond the bulletin board function, some institution could be granted authority to facilitate the match between potential investors and project hosts. Conferred with this brokering function, the institution would use its own judgement to propose appropriate matches between investors and hosts. The institution additionally could be authorized to seek out host and investor participants. Table 3 summarizes potential consequences of institutionalizing an active brokerage function.

TABLE 3. BROKERING MATCHES

IF CENTRALIZED AMONG ONE OR SEVERAL INSTITUTIONS		IF PERFORMED BY INDIVIDUAL PLAYERS	
+	-	+	-
•further reduces search and transaction costs to individual players, reducing entry barrier ↓ •identification of private sector entities channels expertise into regime ↓ •may increase credibility of regime	•may confer undue influence on a single institution •may inhibit development of innovative partnerships	•allows for unhindered associations among hosts and investors •entrepreneurs will bring innovation to the market, bearing the risks and the costs	•high identification and search costs

Like a simple bulletin board service, a mechanism for matching hosts and investors would carry administrative costs, but would reduce up-front costs to individual projects by allocating a portion of aggregate search costs among all participants. An active matching service might reduce costs further because it also would diffuse the bulk of information costs. Reduced costs resulting from institutionalized brokering would promote entry, and might also stimulate participation among a wider class of entities for which participation would not have been cost-effective if the expense of finding suitable partners was borne individually.

Creating or authorizing brokers to match project and investment opportunities might have advantages over a system where all deals were negotiated bilaterally. For instance, brokerage institutions could add an aura of credibility to the regime, promoting greater numbers and greater diversity of participants. If brokerages were able to seek participants, the character of the JI regime might be enhanced by the channeling of private sector expertise.

Conversely, institutions holding authority to match partners could gain undue influence in the JI regime. Brokers might demonstrate institutional biases in preferring particular types of

technologies, with one result being that brokers ended up picking winners and losers. These biases could also limit the formation of creative forms of partnerships and the development of innovative technologies.

The brokerage function could be centralized, or assumed by several institutions. Permitting a monopoly in the matching and assignment of projects might result in more consistent arrangements, but the tradeoff may be to increase delays in project implementation for more experienced players. Allowing for bilateral arrangements as well as for the creation or existence of multiple brokerage institutions with different structures would allow simple projects to be mounted quickly and allow for the formation of innovative partnership arrangements. The availability of options in matching project hosts and financiers is likely to promote participation by more and a wider variety of players.

Assisting Project Development

Among the components of JI project development are formulation of a concept, articulation of technical and legal elements, and analysis of costs. One option under the JI regime would be for individual participants to perform these tasks, that is, to develop projects themselves. An alternative scenario would be to centralize technical, legal and economic expertise in one or more institutions in order to assist potential players seeking to formulate JI projects. Table 4 describes some consequences of choosing one or the other of these options.

The value of institutionalizing some or all project development tasks lies primarily in the centralization of expertise. Without institutional assistance, participants themselves would need to become competent evaluators of technical, economic, legal and political aspects of project design. Any deficiencies in the ability of individual entities to adequately evaluate these elements of project formulation and design would increase the risk of project failure. But because institutions are likely to incorporate biases for particular technologies or designs, development of projects by individual entities could promote greater innovation.

Several existing institutions could execute some or all of the project development functions. Examples include private companies, national research and development labs, universities and private brokerage houses.

TABLE 4. ASSISTING PROJECT FORMULATION AND DEVELOPMENT

IF CENTRALIZED AMONG ONE OR SEVERAL INSTITUTIONS		IF PERFORMED BY INDIVIDUAL PLAYERS	
+	-	+	-
•could provide high level of expertise to all players	•large bureaucratic institutions are often inefficient and slow to react to market conditions	•could promote a wider range of design concepts and technological innovation	•deficiencies in environmental expertise may increase risk of project failure

Packaging Projects as Investment Instruments

Beyond facilitating matches and developing projects, management institutions within the JI regime could allow for the creation and oversight of new investment instruments. Under this approach, the JI institution would determine the cost of a project and set the price under which governments or private enterprises could buy a given level of emissions abatement. To take this approach a step further, the institution could package various projects in a portfolio, such that no individual investor would be tied to any particular project. Table 5 reviews the comparative features of bilateral deals and multilateral investment schemes.

A regime which packages JI investment opportunities could have several advantages over a market which only includes bilateral deals. Specifically, an institution which syndicates project investments could increase the attractiveness of JI to a wider set of participants. Such an institution would make the market significantly more accessible to small investors because virtually all front-end development costs would be borne centrally, and because small projects would no longer carry disproportionately large implementation costs. A syndicator could increase market accessibility for entities with interest in the JI market but without the capabilities of mounting emissions reduction or sink enhancement projects on their own. Syndication would provide potential project hosts with access to a broader capital base and thus access to more diverse projects than available under a straight bilateral system.

Because syndicated arrangements would diffuse technological and political risk among a pool of investors, they could attract participants from two important classes of potential investors: entities which typically would be too conservative to participate in a new and rapidly evolving market, and entities which would not have the resources to support continued oversight of a JI project. This arrangement might cause some projects to lose most of their innovative aspects in order to secure greater participation among conservative investors. Another danger might be less rigorous project implementation than when hosts are responsible directly to individual investors.

TABLE 5. CHARACTERISTICS OF BILATERAL AND MULTILATERAL PACKAGING SCHEMES

BILATERAL		MULTILATERAL	
+	-	+	-
•encourages longterm relationships •maximizes entrepreneurial potential of individuals and private sector entities	•transaction costs borne by individual projects •may favor fewer countries with "best" (cheapest or most extensive) reductions •parties must be competent evaluators of costs	•transaction costs diffused over entire portfolio •distribution of risk •hosts have access to greater capital pool •investor need not oversee project implementation •no longterm obligation to particular technology or entity	•overhead fee for syndicator •discourages longterm relationships •bureaucracy may not promote innovative projects or partnerships

One potential benefit of the investment syndication arrangement is the institution's ability to promote the goals of sustainable development. For example, the COP might assist syndicators to steer investment toward environmentally sound and sustainable projects, potentially moving more towards these goals than if investments were judged only in terms of their potential for financial profitability. A centralized, institutionally-directed project development process might thus be more acceptable both to developing country governments and to NGOs which will likely have more access to project details under an internationally managed system than if projects are only negotiated on a bilateral basis. On the other hand, adopting selection criteria other than economic efficiency might thwart the benefits of the market and thus the full potential of JI.

Moving to a multilateral investment arrangement may hold some negative implications for efficiency, innovation and accountability. First, as with any institutional structure, the syndicator will carry administrative fees. Also, unlike bilateral arrangements where the host retains any difference between the negotiated price and its marginal cost of abatement, a

syndicated scheme would leave that amount (a surplus) with the syndicating institution.[3] The price of emissions credits would not be set at a level equal to the least-cost emissions abatement in either case, but when the institution receives the surplus, there are further risks because the host's incentives to minimize abatement costs are diminished. Loss of the profit incentive, combined with the absence of any direct relationship between investors and hosts, could detract from the host's incentive to ensure the venture's long-term success.

Syndicated arrangements might also discourage longterm relationships among hosts and investors, with both positive and negative consequences. Without stable longterm partnerships, shared visions are less likely to develop. Thus, the willingness of investors to assume the risk of technological innovation might be much less than if they enjoyed stable longterm relationships with their partners. But neither host nor investor would incur any longterm obligations to particular technologies or countries.

In the longer term, if private firms are encouraged only to buy reductions by investing in portfolios of projects, these firms may not take as strong an interest in the development of innovative and efficient projects. The JI institution, like other bureaucracies, may not be able to match the entrepreneurial and innovative spirit typically found with individuals and in the private sector.

Who Could Act as Syndicator?

A variety of private and public sector institutions could assume a role in the creation of syndicated or multi-project investment instruments, including multilateral development banks, governments, NGOs, commodity exchanges, and private sector entities.

The GEF. Recent proposals have suggested a role for the Global Environment Facility (GEF) in the JI regime.[4] While the concept has yet to be fully considered and operational details of the GEF itself have just recently been agreed upon, the proposal would complicate the role of the GEF if private funds and GEF grant funds were comingled. Some commentators have counseled, therefore, that JI and the financial mechanism should be held strictly separate.[5]

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[3] Because price is negotiated, the investment amount may exceed the true cost of the project. But regardless of who accrues the surplus, the project would be attractive to investors as long as the negotiated project cost was lower than the investor's cost of achieving reductions domestically.

[4] See, for instance, Ken Newcombe and Russell deLucia, "Mobilizing Private Capital Against Global Warming: A Business Concept and Policy Issues," GEF Administrator's Office (February 1993).

[5] See, for instance, "Intervention by the Representative of Belgium on Behalf of the European Community and its Member States" (19 August 1993)(*"Another important point to make is that investments in joint implementation should not be mixed up with the financial mechanism. JI should be held strictly separate..."*). See also, "Sustainable Development Through Trade in Environmental Commodities," Environmental Defense Fund (1993).

Others have suggested that the GEF bureaucracy may not be able to respond rapidly to private sector proposals. On the other hand, this type of cofinancing could allow the GEF to leverage substantial private sector resources and amplify the impact of its own limited capital.

Acting as the financial mechanism of the Convention, the GEF has acquired substantial information and knowledge about some of the technologies and systems that could be used in JI projects. As a consequence of its experience in evaluating and underwriting such innovative projects, the GEF has become an important repository of current information relevant to the introduction and operation of JI projects. By emphasizing transparency in its operations, the GEF could become an active archive of this information, even if does not assume a primary role in the JI regime.

International Finance Corporation. The World Bank and its private sector investment affiliate, the International Finance Corporation (IFC), have suggested the establishment of a Greenhouse Gas Mitigation Venture Capital Fund.[6] The IFC proposal is still evolving but as currently envisioned, the Fund would mobilize both public and private capital to leverage primarily foreign private investment in projects which would cost-effectively reduce greenhouse gas emissions and are consistent with national sustainable development plans and programs. The IFC is seeking financing for a feasibility study to determine the parameters of the Fund and IFC's role in it.

With financing expertise and established relationships among players in significant sectors (especially electric power and forestry) the IFC might avoid the appearance problems raised by the commingling of GEF and private sector funds, while retaining the benefits of leveraging private sector resources while using public funds. The IFC also has expertise with assessing business risk, developing financial packages and forming consortia with foreign and local private investors in development projects. However, the IFC might discourage development of new technologies because its investors are likely to demand less risky, commercially demonstrated technologies.

NGOs. Although in principal nongovernmental organizations could act as syndicators of JI projects, NGOs are less able to capitalize such enterprises. The credibility of NGOs as project syndicators may be questioned by many investors. Nonetheless, in a few specialized areas -- perhaps including the development of biodiversity reserves for commercial purposes -- NGOs may be able to act successfully as syndicators. The expertise of these organizations in biological conservation activities and sustained yield management may offer the basis for developing credible JI projects that promote local development objectives and enhance greenhouse gas sinks while protecting biological diversity.

Any or all of these existing institutions or some newly created institution could assume

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[6] See World Bank Discussion Note, "Proposal for a Venture Capital Fund to Catalyze Private Investment in Greenhouse Gas Mitigation in the Developing Countries," Global Environment Coordination Division, Environment Department (October 1993).

a role in project syndication. And the existence of a syndicated arrangements or multi-project investment funds need not preclude the formation of bilateral deals, either privately or through the use of a matchmaking institution. Keeping the JI regime sufficiently flexible to allow multiple types of arrangements is consistent with the opportunities JI provides for optimizing global costs and encouraging innovative partnerships between the public and private sectors. Regardless of how projects are facilitated, the consistency and credibility of the JI regime can be maintained by subjecting all projects to the same system of monitoring and evaluation.

Certifying Project Acceptability Under the JI Regime

The point at which a project is deemed acceptable to the international JI regime and by which institution this judgement would be made could vary considerably. Certainly, specific endorsement of the project by the host and investing country governments will be necessary in order to ensure that a project meets both national standards and comports with some set of international criteria. Additionally, some international body may be given the authority to review projects.

A strategy which called for national governments to endorse JI projects might require creation or designation of an institution to review projects in accordance with international standards, akin to what the United States has created in its pilot program, the United States Initiative on Joint Implementation (USIJI). USIJI established an "Evaluation Panel," comprised of representatives from eight federal agencies, to review and evaluate JI project submissions. The Panel will review and approve submissions within 90 days, and certify net emissions reductions estimated to result from the project. USIJI also sets out criteria -- such as whether the project makes adequate provision for tracking -- for the Panel to use to determine project acceptability.[7]

Pursuing this type of strategy would require that every national government funds and supports the development of an institution to perform the screening function. Although countries are better positioned to absorb these functions at a national level, from a global perspective, establishing 150 national institutions to screen potential projects could be duplicative and inefficient. Moreover, such an arrangement would still lack independent international oversight, and would force the international regime to rely on individual national judgements.

Despite apparent inefficiencies, national institutions may be better suited to evaluate potential JI projects against national and local development priorities. Perhaps some combination of international and local review will be necessary to satisfy both the international regime and national concerns.

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[7] Despite the inclusion of screening criteria, no specific guidelines yet have been developed to assist the Panel in determining what might constitute "adequate" tracking provisions. At what level of detail projects will be screened is still to be determined.

Guaranteeing Project Performance

Failure of JI projects can be characterized in two ways: (1) nonfulfillment of investor funding commitments, and (2) nonfulfillment of emissions reduction pledges. One strategy for protecting participants from such failures would be for the JI regime to provide some kind of market-wide financial insurance function. The alternative might be to require insurance on a project-by-project basis. Table 6 lists some consequences of these alternative scenarios.

TABLE 6. INSTITUTIONALIZED INSURANCE

IF CENTRALIZED AMONG ONE OR SEVERAL INSTITUTIONS		IF PERFORMED BY INDIVIDUAL PLAYERS	
+	-	+	-
•if all participants use same insurer, risk spreading may reduce costs to individual projects	•increases administrative costs of regime •if sole "agent" proves unreliable, scheme could collapse	•participants decide what level of insurance to carry	•every project must set aside funds to carry full actuarial risk and/or each government would have to bear risk

Although operating a centralized insurance institution would entail administrative costs, costs to individual projects might be lower. If all projects participate with the same insurer, costs could be reduced because risk would be shared, and because individual projects would not need to set aside funds to cover their full risk. An institution would also lower costs by standardizing analytical functions.

Using a third-party insurer is not, however, without risk. The agent ultimately could prove unreliable, for instance by failing to keep adequate reserves or properly evaluate risks.

Monitoring Project Achievement

A successful JI regime suggests the need for regular collection of emissions data throughout each project's lifetime. Emissions information will benefit the regime in at least three ways: by satisfying investors that projects are operating properly and that credits will be accorded, by providing timely notification of project failure, and by developing institutional expertise about which projects work and which do not. The international regime could empower either project implementers or independent third parties to gather emissions data or create a new institution to do so. Table 7 lists some of the consequences of these alternatives.

The value of reliable, standardized information and the institutionalized learning facilitated

through central archiving of data might offset the high costs of administering such an institution. And centralizing costs may be more cost efficient than a scenario under which every project develops and finances its own monitoring expertise. Despite possibly significant costs, regular collection of project emissions data by a centralized institution could benefit the regime in terms of credibility and institutional learning. The standardization of data collection and reporting methodology would reduce variability and thus offer reliability of information, facilitating international review. Requiring every project to provide for routine emissions monitoring would also promote learning, by providing timely and accurate information about successes and failures during design and implementation. And greater accuracy derived from normalizing the process would also enhance the value of the information for learning purposes.

Routine monitoring might also be advantageous in disputes over failed projects. In a bilateral regime in which the agreement is essentially a contract between two parties, the JI institution may have no role in dispute settlement other than to deny credit for emissions reductions. But in a multilateral regime, where liability for project failure will affect the overall viability of the JI regime, it will be important to internalize and to formalize lessons from unsuccessful projects. The failed project must be analyzed carefully to determine where in the development and implementation cycle responsibility for failure lies, making it possible to judge similar projects in the future. The costs of continuous monitoring, which in some cases could be quite high, will have to be evaluated against the value of ensuring that environmental goals are met and increased institutional learning.

TABLE 7. PROJECT MONITORING

IF CENTRALIZED AMONG ONE OR SEVERAL INSTITUTIONS		IF PERFORMED BY INDIVIDUAL PLAYERS	
+	-	+	-
•higher degree of accuracy and reliability due to standardization of methodology and equipment •central archiving of records and continuous monitoring could increase institutional learning	•direct and administrative costs of continuous monitoring could be significant	•costs could be low for either continuous or intermittent monitoring	•possible lower credibility for regime as a whole

Verifying Project Characteristics

Verification is expected to satisfy the question of whether reductions in fact occur -- the measurability test. Regardless of whether JI unfolds through bi- or multi-lateral institutions, and whether it includes countries without specific commitments, ensuring the regime's integrity requires near-term institutionalization of some type of emissions verification function.

Several entities could in principle verify emission reductions: project participants, national governments, and independent third parties. Third party entities include national universities; nongovernmental organizations; consultants; an international mechanism, either existing or newly-established; or other multilateral institutions familiar with conditions in the host countries.

Information collected by implementers themselves is unlikely to suffice as the sole method for assessing project results and crediting national reduction obligations. Relying on routine monitoring information reported by participants, without conducting any further review, is a scenario which, given the stakes, may not always inspire confidence in the JI regime or protect the atmosphere. Even projects implemented bilaterally among Annex I countries will require verification; in fact, the need may be greatest in these instances because both parties to the agreement may have a shared interest in supplying information that maximizes emission or sequestration effects. While the regime may want to preserve the right of participants to *report* emissions, the regime is unlikely to be perceived as credible if those contributing capital or responsible for project implementation are permitted to *verify* reductions.

One scenario which preserves the right of parties to report reductions independently, yet offers the credibility of independent review and formalizes lessons, would be for project participants to assume responsibility for routine emissions monitoring while having some centralized international institution conduct "spot checks" over the life of the project. This combination could help assure all parties that promised results were actually achieved before national accounts were credited.

Verification of emissions reductions needs to be considered early, despite expense, complexity and political sensitivities, because it is the foundation of a credible regime. Lessons from the GEF's experience with building monitoring into project design need to be shared, especially the challenge of developing procedures after projects have been designed or implemented.

Evolving a Market Architecture

The future evolution of the JI regime is highly uncertain. As one means to achieving their ultimate goal, the Parties to the Climate Convention have chosen a challenging route: the creation of a market for commodities (i.e., greenhouse gases) that have never before been traded or sold. To make the situation even more difficult, the commodities are invisible, odorless, tasteless and hard to measure. A number of the operational uncertainties associated with the management of

a JI regime have been discussed herein, but many more exist.

The need to deal with all of these uncertainties suggests the appropriateness of a phased approach to evolving the market architecture of the JI regime.[8] For example, it might be prudent to initiate the JI regime with a pilot phase, as discussed at the Ninth INC Meeting, that could last two to five years. During this pilot phase, emphasis would be placed on institutional learning and on the examination of a wide array of institutional arrangements. During this phase, no attempt would be made to establish or account for international credits against national commitments for emissions reductions. Nonetheless, individual governments might offer some form of domestic inducements to enterprises which choose to participate in JI projects.

The United States has adopted a parallel approach in conjunction with USIJI, part of the U.S. Climate Action Plan released in October 1993. Recent experience with the GEF supports the notion that periodic evaluations of any such regime are essential. A phased approach, employing periodic evaluations, may balance demands to begin JI projects soon against the need to consider fully the equity and efficiency implications of any proposed regime. A phased approach can maximize institutional learning, while promoting innovation and continued experimentation.

The assumption of additional functions by an institution managing the JI regime may offer additional benefits, even while increasing bureaucratic complexity. For example, it could offer new opportunities for organizational learning, concentrating rather than diffusing knowledge about what works in this evolving "market." Given that JI is not accepted universally, some level of bureaucracy seems necessary to assure systematic and credible assessment of the regime. The difficulty is in achieving the optimal balance, that is, knowing how much bureaucracy is "right" for each stage of market evolution. The danger, of course, is that bureaucracies easily become entrenched stakeholders themselves, and become very resistent to reform and change. Unfortunately, there is no simple way to design an optimal market architecture or to predetermine the best institutional form given the variety of expectations for JI and the range of potential institutional forms and functions. A step-by-step approach in which all countries learn together therefore appears the practical way to proceed.

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[8] Several Parties to the Convention and commentators have suggested a phased approach. See, for instance, "Intervention by the Representative of Belgium on Behalf of the European Community and its Member States" (19 August 1993)(*"In light of the outstanding problems and uncertainties connected to the use of JI,...the concept ought to be tested during a pilot period"*). See also, Pier Vellinga and Roebijn Heintz, "Joint Implementation: A Phased Approach" Institute for Environmental Studies, Free University, Amsterdam, the Netherlands (1994).