Carbon Conservation
Climate Change, Forests
and the
Clean Development Mechanism

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Acronyms

ACCVC  Costa Rica’s Central Volcanic Mountain Range Conservation Area
ACG  Guanacaste Conservation Area
ACOPE  Costa Rican Association for the Production of Electricity
ACOSA  Osa Conservation Area
AIJ  Activities Implemented Jointly
CACTU  County Agricultural Center of Turrialba
CAF  Forestry Investment Certificate (Certificados de Abono Forestal)
CAFA  Advance Forestry Investment Certificate (Certificado de Abono Forestal por Adelantado)
CAFMA  Natural Forest Management Certificate
CARFIX  Costa Rican JI project in the Central Volcanic Mountain Range Conservation Area
CCB  Forest Protection Certificate
CDM  Clean Development Mechanism
CEDARENA  Centro de Derecho Ambiental y de los Recursos Naturales
CERs  Certified Emissions Reductions
CIEL  Center for International Environmental Law
CINDE  Costa Rican Coalition of Development Initiatives
CNFL  National Power and Light Company in Costa Rica
COMBOS  The Association for the Conservation and Management of Tropical Forests
COP  Conference of the Parties
CTOs  Certified Tradable Offsets
ECOLAND  Esquinas Carbon Offset Land Purchase Initiative in Costa Rica
FCCC  Framework Convention on Climate Change
FESP  Costa Rica’s Forestry Environmental Services Payment
FONAFIFO  Costa Rica’s National Fund for Forestry Financing (Fondo Nacional de Financiamiento Forestal)
FUNDECOR  Foundation for the Development of the Central Volcanic Range
FUNDEX  Foundation for Export Development
GHGs  Greenhouse Gases (i.e.: CO2 - carbon dioxide, CH4 - methane, N2O - nitrous oxide)
GRUAS  Costa Rica’s multi-institutional and inter-disciplinary commission to identify land for purchase and promote sustainable forestry policy
INBIO  National Biodiversity Institute
IPCC  Intergovernmental Panel on Climate Change
JI  Joint Implementation
JUNAFORCA  Costa Rican coalition of landowners
KLINKIFIX  JI pilot reforestation project in Costa Rica
LUCF  Land Use Charge and Forestry
MINAE  Costa Rica’s Ministry of the Environment and Energy
MOP  Meeting of the Parties
NGO  Non-governmental organization
OCIC  Costa Rica’s Office for Joint Implementation (Oficina Costarricense de Implementación Conjunta)
PAP  Protected Areas Project in Costa Rica
PFP  Private Forests Project in Costa Rica
SINAC  Costa Rica’s National System of Conservation Areas
SGS  Société Générale de Surveillance
A. Overview

This report identifies problems and solutions that emerged from the experience with joint implementation (JI) forest projects in Costa Rica, and discusses their significance to the design of the Clean Development Mechanism (CDM) established by the 1997 Kyoto Protocol. It also addresses some of the concerns of project developers, environmentalists, and Parties as they grapple with defining the CDM and the role of forest management in climate change mitigation.

The findings in this report are based on the first-ever, on-the-ground review of actual carbon sequestration projects. During 1996 and 1997, the Center for International Environmental Law (CIÉL) and the Centro de Derecho Ambiental y de los Recursos Naturales (CEDARENA) reviewed the general policy framework and four specific forest projects adopted under Costa Rica’s Joint Implementation (JI) Program. This review was based on examination of project documents, discussions with project sponsors and government officials, and visits to project sites. Costa Rica was selected because it hosts more JI Projects than any other country, and because it has the most highly developed JI program of any non-Annex I (developing) country. The resulting case study describing these projects is included as Part II of this study.

Based in part on the results of the Costa Rica case study as well as general policy concerns raised during the negotiations over the Kyoto Protocol, this part of the Study addresses major issues raised by the proposed CDM. The report’s recommendations, contained in Part I.E, are intended to shape the future legal and institutional framework of the CDM.

We conclude that, given the right legal and institutional framework, CDM forest projects could be potent tools in achieving climate benefits while protecting forests and benefiting local communities. We support linking a full range of forest and climate strategies through the CDM, not only because we believe this approach can work, but because we fear that any other approach will fail. If the legal and institutional framework for the CDM is not carefully designed, with both climate and other environmental and social impacts considered, the resulting investments and incentives could undermine both forest conservation and climate change goals. Furthermore, we believe that the CDM must provide socio-economic benefits for recipient countries, and especially for local communities. Otherwise, long-term support for CDM projects cannot be guaranteed, and projects may not last.

1. Climate Change and Forests

Profound links exist between climate change and forests. Climate change can cause deforestation; deforestation, in turn, can exacerbate climate change. Forests can be sources, sinks, or reservoirs of greenhouse gases (GHGs), the gases that cause climate change. When forests are damaged or destroyed, they release carbon dioxide (CO₂)—the principal GHG—as well as other GHGs into the atmosphere. When forests are restored, they remove CO₂ from the atmosphere.

Recent conflagrations in Indonesia, Brazil, and Mexico demonstrate the magnitude of the dangers linking both forest loss and climate change. In Indonesia alone, six months of uncontrolled burning released more GHGs into the atmosphere than all sources in the European Union combined during an entire year. Moreover, many experts attribute the severity of these fires in part to climate change. Recognizing the close linkages
between forests and climate change, negotiators have included forests and their management as critical components of the climate regime.

2. The Climate Regime and the Clean Development Mechanism

The 1992 United Nations Framework Convention on Climate Change (FCCC) deliberately embraced forest issues as integral to the overall effort to address climate change. The objective of the FCCC, for example, is “to achieve ... stabilization of greenhouse gas concentrations in the atmosphere.” The Convention specifically did not choose the narrower objective of reducing greenhouse gas emissions, which would have virtually excluded a major role for forests. Moreover, the FCCC requires all Parties to “promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases.” The 1997 Kyoto Protocol continued to include forests in the overall regime. Article 3 of the Protocol, for example, includes deforestation, reforestation and afforestation activities in determining countries’ emission reductions.

Forest conservation activities were also considered among those eligible for joint implementation (JI) under the FCCC. JI was initially believed to be the mechanism that would allow industrialized (Annex I) countries to meet their own obligations by financing or undertaking activities in developing (non-Annex I) countries. For example, the United States would be allowed to meet its obligations under the Convention by investing in energy efficiency in China. In 1995, the FCCC Conference of the Parties adopted the Berlin Mandate, which further endorsed joint implementation and established some clearer parameters for a JI pilot phase to end before the year 2000. During this pilot phase, Parties were encouraged to continue to experiment with JI, but no credits would be made available for carbon emission reductions achieved during the pilot phase. JI, like emissions trading, has the possibility to lower the overall costs of meeting climate obligations. Critics, however, are concerned that monitoring JI may be impractical and that proving a project has contributed additional climate benefits may be impossible. Because of the many issues surrounding JI, particularly JI forest projects, CIEL and CEDARENA commenced of this study.

During the negotiations of the Kyoto Protocol, however, JI with developing countries was supplanted by the creation of a new Clean Development Mechanism to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments.

See Box 1. For the moment, the CDM remains largely undefined; it is possible the CDM does not even include forest projects. Article 12 of the Kyoto Protocol, which establishes the CDM, speaks only of “certified emissions reductions” being achieved through the CDM, although it does not expressly limit these reductions to the energy sector. Thus, in addition to energy projects, Article 12 may include forest conservation projects (i.e. projects that result in reduced carbon emissions). At present, the language appears to exclude projects that remove carbon from the atmosphere (e.g. reforestation and afforestation projects). Limiting the CDM to conservation projects seems inconsistent with other provisions of the Protocol, including for example Article 2, which requires Annex I countries in achieving their emission reductions to promote “sustainable forest management” and Article 3, which includes deforestation, reforestation and afforestation to be counted in evaluating an Annex I country’s achievement of emission reductions.

Given the ambiguity that still surrounds the Clean Development Mechanism, it is not yet clear whether the CDM will differ significantly from JI as it was originally conceived. Regardless, if the CDM recognizes emission reductions (and removals) from forest projects, lessons learned from the JI Pilot Phase can be invaluable for designing and implementing forest projects under the CDM.
3. The Costa Rica Joint Implementation Pilot Projects

As noted above, beginning in 1996, CIEL and CEDARENA reviewed forest sequestration projects in Costa Rica to learn whether CDM forest projects could simultaneously:

- deliver quantifiable, verifiable, and durable climate change benefits;
- enhance protection for forests and biodiversity; and
- provide socio-economic benefits for recipient countries, especially for local communities.

Box 1.

Article 12 of the Kyoto Protocol: The Clean Development Mechanism

1. A clean development mechanism is hereby defined.

2. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

3. Under the clean development mechanism:

(a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and

(b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.

4. The clean development mechanism shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Protocol and be supervised by an executive board of the clean development mechanism.

5. Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of:

(a) Voluntary participation approved by each Party involved;

(b) Real, measurable, and long-term benefits related to the mitigation of climate change; and

(c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

6. The clean development mechanism shall assist in arranging funding of certified project activities as necessary.

8. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall ensure that a share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

9. Participation under the clean development mechanism, including in activities mentioned in paragraph 3(a) above and acquisition of certified emission reductions, may involve private and/or public entities, and is to be subject to whatever guidance may be provided by the executive board of the clean development mechanism.

10. Certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period.
Box 2.
The Three Phases of Costa Rica’s JI Pilot Phase Forest Projects

Phase 1
Individual projects are undertaken by private entities. The projects exist independently from each other, and are not governed by a single framework. The projects are carried out at specific locations and additionality is assessed through local baselines.

BIODIVERSIFIX: Afforestation/Reforestation (see Part II.D.2.c)
This project combines two subprojects, WETFIX and DRYFIX, that will regenerate degraded tracts of tropical wet forest and tropical dry forest in the 135,000-hectare Area de Conservacion Guanacaste (ACG) in Costa Rica. The ACG contains forest conserved for sustainable, low-impact uses of wildland biodiversity. The project area is 58,500 ha.

Project Participants:
Costa Rica: Ministry of the Environment and Energy (MINAE) - project development, administration, government regulation and oversight
USA: The Nature Conservancy - technical assistance

CARFIX: Conservation and Reforestation (see Part II.D.2.d)
The forestry project located in central Costa Rica aims to stabilize the existing natural forest and create additional forest cover in the Central Volcanic Conservation Area (ACCVC), a 290,187-hectare (ha) buffer zone surrounding the World Biosphere Reserve of Braulio Carrillo National Park. The project area consists of 108,265 ha of forest land.

Project Participants:
Costa Rica: Fundacion para el Desarrollo de la Cordillera Volcanica Central (FUNDECOR) - project development, administration;
Ministry of the Environment and Energy (MINAE); Area de Conservacion Cordillera Volcanica Central (ACCVC) - government regulation and oversight;
USA: Wachovia Timberland Investment Management - financing

ECOLAND: Forest Preservation (see Part II.D.2.a)
The project will preserve tropical forest through the purchase of approximately 2,500 privately-owned hectares in the Piedras Blancas National Park (formerly named the Esquinas National Park) in southwestern Costa Rica. The purchased land will be conveyed to the Costa Rican Park Service for permanent protection. The project area currently consists of 2,000 to 3,000 ha of land.

Project Participants:
Costa Rica: Ministry of Environment and Energy (MINAE) - government regulation/oversight, monitoring/verification;
Conservacion y Manejo de Bosques Tropicales (COMBOS) - project administration, financing;
Austria: Regenwald der Osterreicher - monitoring/verification, financing
USA: Tenaska Washington Partners II, L.P. - financing
National Fish and Wildlife Foundation - financing

KLINKIFIX: Reforestation (see Part II.D.2.b)
The project will convert pastures and marginal farmland to commercial tree plantations by planting 6,000 hectares of private farms with mixtures of selected fast-growing tree species in a matrix, with the Klinki tree as a major component. The trees will be harvested periodically for use in long-lived lumber products (such as utility poles) or left standing. The objective is to develop a demonstration project that involves the farmer in carbon sequestration using the latest tree farming technology while providing greenhouse gas (GHG), wood production, and conservation benefits.
Project Participants:
Costa Rica: Cantonal Agricultural Center of Turrialba - project development, administration, monitoring and verification;
Tropical Agriculture Research and Higher Education Center - technical assistance
USA: Reforest the Tropics, Inc - project development, administration;
United States Department of Agriculture Forest Products Laboratory - technical assistance;
Yale School of Forestry and Environmental Studies - technical assistance

Phase 2
A government coordinated “umbrella project” provides a framework for more than one instance of JI investment. The government issues certified tradable offsets (CTOs) to investors in JI projects. The funds accrued through the sale of CTOs is returned to local landholders for investments in environmental services such as forest management, tree plantation and forest conservation. The term “umbrella” does not imply anything about the type of baseline used, since local baselines are still used in project development.

Private Forestry Project (see Part II.D.3.b)
JI funds are collected in a single fund so that homogenous CTOs can be given to funders. This project uses payments for environmental services (FESP: Forestry Environmental Services Payment) to encourage tree plantations, conservation and sustainable forest management. The project is funded by joint implementation funding and a local tax on gasoline from the government of Norway. While FESPs are paid to landowners for tree plantations and forest management, CTOs are given to entities that contribute to FONAFIFO, the National Fund for Forestry Financing. Norway is currently involved in a PFP project to protect sensitive watersheds. It appears that for the moment, baselines are to be project specific, similar to the non-umbrella projects.

Phase 3
A government coordinated “umbrella project” which uses the funds collected from the sale of CTOs to purchase lands and settle land tenure claims in National Parks and Biological Reserves. At this phase, additionality is assessed using a national baseline and CTOs are issued to unidentified investors

Protected Areas Project (see Part II.D.3.c)
This project was proposed to strengthen the National System of Conservation Areas. Faced with the reality that only 5% of lands in National Parks and Biological Reserves are currently registered as government-owned, the PAP was started to enable the eventual transfer of all lands in National Parks and Biological Reserves into the hands of the Ministry of Environment and Energy. This project must contend with substantial legal difficulties, as the system of land tenure in Costa Rica is highly complicated and many lands are subject to conflicting claims. Joint implementation funding is obtained by the sale of CTOs to funders. This is the only project which at present appears to employ a truly national baseline.
Costa Rica has been the world’s leader in developing pilot projects that mitigate emissions of greenhouse gases under the FCCC. Costa Rica’s JI projects can be divided into three phases. First Phase projects are specific and discrete, privately designed and financed projects, in which the government’s only role is project review and approval. Subsequently, the government of Costa Rica through Oficina Costarricense de Implementacion Conjunta (OCIC), the country’s official Office for Joint Implementation, developed two larger scale, nationwide JI “umbrella” projects—called the Private Forestry Project (PFP) and the Protected Areas Project (PAP). These projects represent the “Second Phase” and “Third Phase” projects, respectively. These projects, as well as the four projects reviewed under the First Phase are summarized in Box 2, and described in detail in Part II of this study.

While the lessons learned from Costa Rica’s JI experience can instruct the design and implementation of CDM projects, careful attention must be paid to the specific conditions of each country’s economy and ecosystems to ensure project sustainability and success. The Costa Rican experience clearly points the way for future research and provides many lessons for countries interested in developing approaches to carbon sequestration for the purpose of participating in the CDM.

B. Ensuring Climate Benefits of Forest Sequestration Projects

Article 12 of the Kyoto Protocol highlights four major issues that must be addressed in the design and implementation of the CDM (or any other similar mechanism) to ensure that actual climate benefits are achieved through forest sequestration projects. These questions include:

- Are the climate benefits additional?
- Are the climate benefits quantifiable?
- Are the climate benefits verifiable?
- Are the climate benefits durable?

Lessons learned from the Costa Rica JI pilot phase can shed substantial light on these questions.

1. Are Climate Benefits Additional?

For emission reductions to be certified by the CDM, Article 12 of the Kyoto Protocol requires that they be “additional to any that would occur in the absence of the certified project activity.” This is known as additionality. Early JI forest projects in Costa Rica demonstrated additionality of projects, rather than of emissions reductions, by applying a financial test. They argued, probably correctly, that without the interest in JI, funding would not have been available for these projects, particularly funding provided by utility companies or investors seeking a profit. As discussed in the next section, projects also must demonstrate and quantify net reductions in GHG emissions. This is known as environmental additionality.

2. Can Climate Benefits from Forest Projects Be Quantified?

Article 12 of the Kyoto Protocol requires that emission reductions resulting from CDM project activities be “measurable.” It is not enough to show that a project is likely to provide climate benefits; the benefits must be carefully quantified before credits from the project can be certified. While scientists can measure some things quite precisely—e.g. above-ground carbon on a small-to-medium size project site—the amount of carbon that would have been sequestered without the project (the baseline), or the offsite effects on the carbon cycle (leakage), are more difficult to quantify.

a. Baselines

Experience from Costa Rica suggests that deriving baselines from historical experience on or near the project site is complicated, but can help eliminate guesswork. However, deforestation and land-use change may fluctuate in response to external factors (for example beef prices), and historic rates will not always be an accurate guide to future trends.
The early (phase one) forest projects in Costa Rica vary widely in the complexity of their baseline calculations. The baseline for the BIODIVERSIFIX project, which involves restoration of forest on degraded pastures, is straightforward. It presumes that, without intervention, virtually no regeneration would occur on these pastures within the lifetime of the project. Similarly, the KLUNIFIX project, which creates plantation forests on degraded pasture, also assumes that these pastures will not naturally regenerate and, further, that they will continue to degrade and the soil will continue to lose carbon. While the developers assume that the project will slow the rate of carbon loss from the soil, they do not take any credit for soil carbon improvements.

The underlying assumption of these projects—that abandoned pastures will not regenerate naturally in Costa Rica—is controversial. The extent of regeneration may be influenced by many factors, including proximity to existing forests, density of existing ground cover, and soil and climate conditions. On the one hand, some natural regeneration of pastureland probably would occur, so the baseline should probably not be zero. On the other hand, well-designed intervention can accelerate natural regeneration, and the uptake of GHGs could be enhanced by these projects for many decades.\textsuperscript{11}

ECOLAND is a pure forest preservation project—it does not involve reforestation or management—hence the baseline is the estimated rate of future deforestation in the region. The historic deforestation rate might have served as a predictor of future rates, but in the case of ECOLAND the recent deforestation rate has been low due, according to the developer, to anticipated government buyouts. The government has been unable to raise the funds needed to accomplish these buyouts, however, and the developer’s discussions with landowners revealed frustration with the government and an interest in resuming land clearing.

Without the project, ECOLAND project developers assumed that 100% of the forest eventually would be lost. It is difficult to test this assumption, as it seems to be based on a unique set of circumstances existing at the project site. The larger picture in Costa Rica tends to confirm one of the underlying premises; the government probably does not have adequate resources to protect all remaining primary forest. Of course, all forests not protected by the government would not necessarily be lost. Many Costa Rican landowners have set up private reserves and adopted such protective measures as conservation easements. This trend is accelerating as the value of ecotourism increases and that of alternative uses, such as ranching, decreases.

The CARFIX project utilizes a complex formula for its baseline. For its forest protection component, it assumes a continuation of the observed annual rate of 6% deforestation outside fully protected areas. Within protected areas it assumes a rate of only 2.8-4.1%, depending on proximity to roads and other factors.

b. Leakage

The potential for “leakage” introduces another element of uncertainty into JI and CDM projects. Leakage occurs when the project itself causes net emissions to increase off the project site. For example, protecting an area of forest from logging may simply drive logging activities to another location, resulting in no net reduction in logging or carbon emissions.

The specific forest projects studied here generally do not devote much attention to the question of leakage in their project documents, and it is difficult to assess how leakage was accounted for in the design of the projects. The ECOLAND project raises the possibility that landowners might move out of the park, only to purchase and deforest land elsewhere. Several factors mitigate against this, however. First, forested land has become quite expensive in Costa Rica. Second, there is little economic incentive to de-
land has become quite expensive in Costa Rica. Second, there is little economic incentive to deforest, given the depressed price of beef. Of course, this could change in the future if beef prices go back up. Third, the government is providing payments for environmental services to landowners that protect their forests. It should be noted that these assumptions appear to contradict somewhat the assumptions used to develop the baseline.

KLINKIFIX is unlikely to cause significant leakage because it does not appear to displace any existing or future economic activity. It merely provides incentives for landowners to plant trees on degraded lands. Similarly, BIODIVERSIFIX should not cause leakage in the near term, although it is harder to predict long-term effects. While it replaces an economic activity, the decline of that activity—cattle ranching—was already occurring and was not caused by the project. As long as beef prices remain low, ranching will probably not move offsite. If, prices go back up, however, leakage could be a problem. Again, government payments for environmental services are intended to prevent this occurrence.

CARFIX appears to have devoted more attention to leakage than other phase one projects. It does not displace landowners, but rather provides them with sufficient income to compete with cattle grazing. Importantly, it avoids promoting demand-driven offsite logging by ensuring that onsite timber production does not diminish but actually increases.

To some extent, the potential for leakage is a function of the size of the project or “system” boundary; the larger the boundary, the greater the likelihood that all impacts will be accounted for. Hence, another approach to reducing leakage is to move to ever larger system boundaries. Larger boundaries could also help reduce uncertainty connected with project baselines, since rates of harvesting and deforestation may more easily be predicted for large areas than for small ones.

Costa Rica has steadily expanded its system boundary. In fact, under its nation-wide Protected Areas Project (PAP), Costa Rica has developed national baselines for one class of projects—forests in protected areas. Even some pre-existing forest conservation projects are included. The PAP generates “certified tradable offsets” (CTOs), which are based not just on the maintenance of the forest on a specific site but on the maintenance of all designated protected areas within the country. Costa Rica is currently marketing its CTOs through the Chicago Board of Trade for $10-20 per ton of carbon. In the future, Costa Rica plans to take a similar approach to privately owned forests and energy projects.

Expanding the system boundary also provides greater certainty for the investor, for if a forest on a specific site is damaged or lost, forest in other parts of the country can compensate. In fact, Costa Rica is setting aside approximately 15% of its protected forests as “insurance” under the PAP against loss of forest within the protected areas and the resulting loss of CTOs. The amount of land set aside is adjusted to reflect uncertainty in the baseline and other factors.

Once it had taken a national approach to JI forest projects, Costa Rica could have adopted several methods for devising its baseline. For example, the national rate of deforestation could have been used as a uniform baseline for all areas within the country, adjusting the baseline over time, since rates of deforestation change. However, like many developing countries Costa Rica does not own most of the land in areas designated by the government as “protected.” It barely has enough resources to protect the lands that are publicly owned, and it lacks both the resources and the legal authority to protect private lands. Costa Rica recognized that all lands did not face the same degree of threat, or the same rate of anticipated deforestation, so the government devised a complicated formula for determining baselines for different areas within the country. In the end, though, all the complex calculation must add up to a national baseline that reflects historic, current and anticipated deforestation rates throughout the country.
c. Sequestered Carbon

Doubts continue regarding the accuracy of carbon sequestration estimates, particularly on a large scale. The larger the project, the more difficult it is to develop precise estimates of sequestered carbon. Nonetheless, many experts maintain that we already have the tools to measure above-ground carbon to a high degree of accuracy, and work is now going on to improve measurement of carbon in soil and refine large-scale monitoring techniques, such as aerial surveillance and remote sensing. It will be for the Intergovernmental Panel on Climate Change (IPCC), the UN body responsible for investigating scientific issues related to climate change, to evaluate these techniques and ultimately to determine the viability of carbon calculations from forests. Meanwhile, forests projects should proceed on the basis that, where uncertainty exists, conservative estimates will be used. Even below-ground carbon, which is the most difficult to quantify, can be counted as long as the most conservative estimate is used. Clearly, the amount of below-ground carbon is some number greater than zero.

Another issue that could introduce high levels of uncertainty is whether and how to include long-lived forest products, such as furniture and some building materials, in calculating the carbon benefits. While IPCC guidelines do not take such carbon into account, the issue is currently under review. To include such carbon for credit, it would be necessary to show, among other things, that carbon is accumulating in products more rapidly than those products are decaying in landfills and elsewhere. It also might require tracking wood products from cradle to grave. These will be extremely difficult, if not impossible, tasks. For the present at least, carbon sequestered in products probably should not give rise to additional credit.

Adopting conservative estimates means discounting to factor in uncertainty. The requirement that project developers and investors discount for uncertainty provides an additional incentive to conduct ex post reviews of projects to measure sequestered carbon, verify baseline, look for leakage, and adjust credits accordingly. If initial estimates of benefits are conservative, such ex post review and adjustment is likely to benefit investors and developers.

3. Can Climate Benefits from Forest Projects Be Verified?

JI poses a moral hazard, in that both the buyer and the seller have a financial incentive to exaggerate the environmental benefits of the project. Certification of projects and verification of emissions reductions could mitigate this problem, particularly to the extent that such “truing up” occurs after the reductions have been achieved. Article 12 of the Kyoto Protocol states that, to be certified, emissions reductions from CDM project activities must be “real.” In other words, it must be possible to verify them. Unfortunately, Article 12 of the Protocol provides only limited guidance. It seems to require ex ante certification of projects,18 ex post certification of reductions,19 and third party auditing and verification of project activities,20 but it remains for the Conference of the Parties serving as the meeting of the Parties (COP/MOP) and the executive committee of the CDM to sort out what types of certification and verification will be required, when they will be required, and who will perform these functions.

Ex post assessment of emissions benefits and third party verification by independent auditors would go a long way toward reducing uncertainty and eliminating the moral hazard, but they cannot eliminate these problems entirely, as a simple hypothetical demonstrates. Suppose a developer undertakes to protect forest A. For the baseline, he calculates that without his project half of forest A would be lost in ten years. The project proceeds and ex post investigation shows that after ten years forest A is intact, but forest B, which is adjacent to forest A, has been entirely wiped out. We may conclude that leakage occurred, and that all the harm that would have occurred in forest A was displaced to
forest B, in which case there was no net benefit, and our developer should receive no credit. On the other hand, we may conclude that the problem was not leakage but an overly conservative baseline estimate. But for the project, forest A would also have disappeared, so the developer is really entitled to double his credit.

Is there a way out of this conundrum? The World Resources Institute argues that leakage often can be anticipated, its causes identified, and protection taken to avert it or to account for it in calculating the credit that the project earns. This may offer a partial solution, but the determination of leakage, even after the fact, will never be a certain science. Even where harmful impacts can be traced to CDM projects, it will be difficult to quantify how much of the impact is directly attributable to the project, and what would have occurred in the absence of the project, both onsite and offsite.

The accuracy of baselines should be verified based on prior experience in the region and, where feasible, ongoing comparison to control plots. The latter approach raises a question, however, whether baselines should be static (i.e., determined at the start of the project and unchanged during the course of the project) or dynamic (recalculated during the life of the project). A dynamic, after-the-fact approach would yield greater accuracy in assessing actual climate benefits, but many potential investors prefer the certainty that comes from a static, forward-looking approach to baseline determination. Nevertheless, if the rules are clearly defined at the outset, and conservative estimates of climate benefits are made wherever uncertainty exists, a dynamic approach to baselines—and leakage—may provide sufficient certainty for investors.

4. Can Climate Benefits from Projects Be Sufficiently Durable?

Article 12 requires that CDM project activities produce "long-term" climate benefits. Climate change is a long-term problem, as GHGs can remain in the atmosphere for decades, in some cases even centuries. Therefore CDM forest projects must also be long-term and durable. Emissions benefits from CDM forest projects must fully account for both the quantity of GHGs being offset and the length of time the GHGs have been in the atmosphere.

Several approaches are available to account for the temporal dimension of forest projects. "Real-time" accounting requires that, for each ton of carbon emitted, the polluter must sequester a ton of carbon and keep it sequestered for the length of time that the emitted carbon remains in the atmosphere. The ideal forest project would perfectly track the residency time of the carbon in the atmosphere. The emitted carbon will gradually be re-absorbed into terrestrial sinks (forests, oceans, soil, etc.), but since some of the carbon will remain in the atmosphere for a century or more, the project must remain on the ground for a century or more.

The project also must account for the life of the polluting activity, so a forest project designed to offset emissions from a power plant with an operating life of fifty years will have to last approximately 150 years!

Even where projects are planned for sufficiently long periods, legal instruments may not be adequate to ensure that these commitments are met. Legal mechanisms exist, however, that can give greater assurance that carbon will remain sequestered. Conservation easements, for instance, are recorded in the deed and obligate all future owners of the property to protect the forest. Creative contracting arrangements can also be devised. For example, money held in escrow during the life of the project can ensure that cash is available if needed to pay for replacement carbon. The insurance industry is also likely to develop products to ensure against future carbon offset deficiencies.

Some existing forest projects are designed to store carbon for a century or more—indeed, protected areas are planned to store carbon in perpetuity—but offset commitments usually are
for much shorter periods. The lifetimes of the phase one projects are registered with the Secretariat of the FCCC: CARTIX 25 years; ECOLAND 16 years; KLINCIFIX 40 years; BIODIVERSIFIX 51 years. While commitments to investors may lapse at the end of the project life, the forests themselves should remain standing, for Costa Rica plans to maintain its forests, particularly those in protected areas, in perpetuity. It is important to note, however, that investors may lose some protections after the project ends. For example, the Protected Areas Project warranties the carbon it sells for a period of 25 years—the life of the project—by maintaining an extra stock of forest as a buffer. This buffer only insures investors during the life of the project, however.\(^{25}\)

Real-time accounting requires the polluter to pay for most of the sequestration before it accrues. Polluters may be unwilling to do this unless the risk of project failure is placed on the seller, who would presumably have to purchase credits or otherwise make up for any offset deficit if the project fails before the emissions have been completely accounted for (i.e., removed from the atmosphere). Sellers also may be unwilling or unable to assume this risk, and those that do may be unable to make restitution if the project fails.

"Ton-year" accounting is another approach. This method equates one ton of emitted carbon with x ton-years, where x is the residency time of carbon in the atmosphere. For example, if the residency time is taken to be 100 years, one ton emitted is equivalent to one hundred ton-years. Under ton-year accounting, one ton emitted could be offset by one ton sequestered for 100 years, by two tons sequestered for fifty years, or by fifty tons sequestered for two years. As an example, suppose a polluter decides that, for each ton emitted, he will sequester 100 tons for one year. Assume, further, that his source emits a thousand tons of carbon per year and will operate for fifty years. Then he must sequester 100,000 tons of carbon per year for fifty years. At the end of fifty years, his obligation is discharged.

Which approach is better—real-time or ton-year accounting—is difficult to say for certain. The ton-year approach delivers its carbon benefit earlier, provides greater certainty that emissions will be fully offset and may lower transaction, insurance, and other costs for the investor. On the other hand, real-time accounting more accurately tracks the actual atmospheric residency time of the emissions being offset. Which ever approach is chosen, the CDM must require full consideration of the temporal dimension early in the project's life.

C. Promoting Sustainable Development in Non-Annex I Countries

The CDM should be viewed in the context of sustainable development, and, indeed, the CDM has an explicit mandate to assist non-Annex I Parties to achieve sustainable development.\(^{24}\) Although a precise definition of sustainable development is beyond the scope of this paper, we maintain that at least with respect to forest projects, fidelity to the concept of sustainable development requires that the CDM give a preference to projects that provide additional forest and biodiversity benefits or that provide economic benefits to local communities. At the very least, CDM forest projects should not cause any additional harm to global environmental values, such as biodiversity conservation, as recognized in various multilateral environmental agreements. Given the potential that CDM investments could interfere with legitimate claims of land titles held by indigenous peoples, we would also add a requirement that CDM projects proposed on lands subject to the claims of indigenous communities only be conducted with the full consultation and participation of indigenous communities. We recognize that the inclusion of these additional conditions on the CDM (and the exclusion of others) is somewhat subjective, but we believe that these issues are closely tied to the concept of sustainable development.
Carbon Conservation: Climate Change, Forests and the Clean Development Mechanism

The FCCC at least generally supports such an approach. An objective of the Convention is to “allow ecosystems to adapt naturally.”\textsuperscript{25} It would be inconsistent to allow projects that mitigate climate change to adversely affect forests and biodiversity. Another objective is to enable economic development to proceed in a sustainable manner.\textsuperscript{26} Parties must “employ appropriate methods,” . . . “with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment.”\textsuperscript{27}

1. Enhancing Protection for Natural Forests and Biodiversity Protection

Obviously, not every “forest” project considered for its climate benefit will deliver the same amount of other environmental and socio-economic benefits; indeed, some previous attempts to reduce forest loss have produced unanticipated adverse affects. For example, financial incentives offered previously to encourage reforestation in Costa Rica and elsewhere in Latin America prompted some landowners to cut down native forest in order to clear land for new trees that would qualify for the incentives.\textsuperscript{28}

Costa Rica has attempted to avoid such perverse incentives in its new Forestry Law, and its JI projects have aimed to enhance biodiversity and provide incomes for local landowners, as well as reduce or sequester GHG emissions. The BIODIVERSIFIX project, for example, was specifically aimed at regenerating forests in areas known for their unique ecosystems. The CARFIX project was designed to make it cost effective for landowners to conserve and regenerate forest by providing an annual income for environmental services they provide. This concept was taken up by the Private Forestry Project, which, under the provisions of the new Forestry Law, issues “Forestry Environmental Services Payments” (FESPs) to private landowners who plant, conserve and manage forests. The provision of incomes to landowners will help maintain the capacity to monitor and manage forests over the long periods necessary for carbon sequestration to be effective.

We should not be lulled into a false sense of security by these projects, however. Future forest projects could bear little resemblance to existing projects unless the proper legal framework is established. The incentives that previously existed to undertake such projects are not the same as those that exist today, and even less like those that will exist in the future. When these projects were initiated, any financial return from carbon sequestration was highly speculative. Investors could not be certain that they would ever be able to use the carbon credits from their investment or, for that matter, that polluters would ever be required to reduce their emissions. The few companies that invested in these projects did so largely for public relations purposes or for the learning experience.

Furthermore, these projects were frequently promoted by a few individuals and organizations who saw JI not as a financial opportunity but as a potential source of additional funding for the conservation, regeneration, and sound management of forests. Many of the activities they sought to fund through JI were already on the drawing board as conservation projects, or had already been initiated with other resources. Gaining climate benefits was, at most, a secondary concern.

Future projects may be quite different. Now that governments and private entities are faced with obligations to reduce their emissions, and crediting is imminent, the search will begin in earnest for cost-saving opportunities to cut emissions. Inevitably, polluters will turn to forest projects as potentially inexpensive alternatives to domestic emissions reductions. Some entities will see the challenge merely as finding and acquiring the cheapest GHG reductions or offsets, which could spell disaster for both climate and forests. Activities that strengthen the project, such as monitoring and enforcement, may be viewed as costly, and project developers may seek to minimize them.

The CDM should adopt strong rules to ensure that forest project provide more than
mere sequestration. At a minimum, to be consistent with its own mandate to assist sustainable development, the CDM must ensure that its projects do not harm natural forests, biodiversity, or other environmental assets. Environmental assessments should be conducted to identify both positive and negative environmental impacts. Where opportunities are identified to enhance biodiversity, though at a higher cost, co-financing arrangements, for example through the Global Environmental Facility, should be explored to cover the incremental costs.

2. Ensuring Consistency with Global Environmental Priorities

There is now an increasingly comprehensive set of international environmental agreements that reflect global environmental priorities. Investments that could flow through the CDM have the potential both to promote and to undermine the environmental priorities reflected in these agreements. Most Parties to the FCCC are also parties to many of these other international environmental agreements, including for example the Biodiversity Convention, the Desertification Convention, and the RAMSAR Convention on Wetlands. To ensure that CDM projects do not gain their climate benefits at the cost of undermining other global environmental priorities, the CDM should require that projects be consistent with the requirements of other international environmental agreements and that countries only be allowed to participate in the CDM to the extent they are in substantial compliance with other major environmental agreements to which they are Parties.

3. Providing Benefits to Local Communities

To promote sustainable development, CDM projects should benefit non-Annex I Parties in ways other than protecting their forests and biodiversity. In addition to issues of equity and fairness, projects that provide substantial socioeconomic benefits, particularly at the local levels, will be more likely to succeed in providing long-term climate benefits. Providing economic incentives for conservation at the local level may be the best way to ensure, for example, that protected forests are not poached and poverty pressures do not change land-use patterns over the long-term. In general, widespread political support for the CDM will only come if developing countries are satisfied that CDM investments will contribute to sustainable, long-term, locally driven economic development. We suggest that the CDM include requirements that facilitate direct benefit sharing, capacity-building and technology transfers with local communities.

a. Direct Benefit Sharing

The CDM and similar mechanisms promise substantial investment flows into developing countries. As suggested above, current global commitments to sustainable development suggest that more attention must be given to poverty alleviation and issues of equity. The CDM offers an important opportunity to ensure that future investment flows provide more direct benefits to local communities than has investment in the past. Moreover, as noted above, ensuring that CDM projects provide local economic incentives will help ensure the long-term success of the project with its resulting long-term climate benefits.

b. Building Capacity

To promote sustainable development, the COP/MOP must ensure that local communities and governments, as well as NGOs and business leaders, have the technical capacities, information and financial resources to participate fully in the CDM. Technical capacity should be developed in all sectors—public, private and government—to ensure that all stakeholders are able to play a role in mitigating and adjusting to the effects of climate change. Thus, for example, the COP/MOP must effectively promote the development of domestic institutional capacities to allow national regulators to evaluate the merits of proposed CDM projects and to monitor their outputs. Forestry projects must be monitored and managed to ensure that carbon sequestration is durable and co-benefits are attained.
Endogenous technological capacities can be developed through training, skills sharing and education to allow for the planning, assessment and systematic observation of CDM projects. This includes capacities: 1) to evaluate the suitability of technology being offered; 2) to make informed choices among alternative technologies; 3) to set standards and undertake ongoing reviews and evaluations of CDM projects; and 4) to ensure that CDM projects meet the goals of the FCCC and complement domestic policy objectives.

Relative to its size and population, Costa Rica may be unique among developing countries in the amount of technical expertise that exists within the country for forest management, agricultural research and development, and biodiversity protection. The KLINKIFIX, BIODIVERSIFIX, and CARFIX projects all have training components to disseminate this expertise to local communities and landowners.

c. Technology Cooperation

Several general principles should guide the CDM in all activities involving the exchange of information and the transfer of hard and soft technology. The CDM should promote the development and transfer of technologies that provide significant climate change benefits while complementing the social, economic and technical settings of host countries. When technology is designed or selected, attention must be paid to the specific local conditions where the technology will be deployed. In selecting appropriate technologies, project developers should begin by determining what is already domestically available, what is familiar, and what has been shown to work. If appropriate technology cannot be located within a country where a CDM project is being designed, technology that has been successfully deployed in similar applications in other developing countries should be investigated. Technologies developed in the South are most likely to succeed in the South. Conversely, Northern technology developed for use in the North is least likely to prove satisfactory in CDM host countries. Technologies developed in the North for southern applications should be thoroughly tested before any substantial commitment of CDM resources is made. Technologies that are either obsolete or highly experimental will rarely be appropriate, although some experimentation in CDM forest projects may be needed, particularly to adapt to the specific context of the project.

Technology transfers should be supported by ongoing technical assistance, education and training, and by adequate financial resources (see Capacity Building above). Project success hinges on a long-term commitment to the project, not just a one-time transfer of information or equipment. Flexible arrangements and contingency funding often will be required as well.

In addition to having a high level of technical expertise, Costa Rica has much of the technology it needs to implement successful forest projects. There already exists a high level of North-South information exchange, and many organizations based in the North are actively working in the field in Costa Rica. While three of the four phase-one projects received technical assistance from the North, all three are highly collaborative and probably could have been executed as well by national teams. The situation will vary dramatically from country to country, however, and while the Costa Rica experience is instructive, each project must be shaped by the national context in which it will be implemented.

D. Making the CDM a Success

1. Ensuring a Transparent and Participatory CDM

a. Informed and Effective Public Participation

The importance of informed and effective public participation in environmental decision-making has achieved international recognition. The 1992 United Nations Conference on Environment and Development (UNCED) recognized the many benefits of public participation
to government, local communities, regulated entities and society as a whole. The Rio Declaration and Agenda 21 both endorsed the principle of public participation as a crucial component of sustainable development.\textsuperscript{31} Both public and private development projects have frequently gone awry because local people were not informed or consulted, even when projects that directly affect them are being designed and developed.

Through these international processes, informed and effective public participation has been defined to include three equally important components: access to information, public participation in decision-making and access to justice. Informed and effective participation requires that the affected public has the right to access to information, subject only to necessary, limited and explicit restrictions, that they know that a decision is being made, and that they have a right to participate in that decision. Notice of a pending decision must come early enough in the process for the public to review relevant materials, inform themselves on the issues and prepare their input. Notice must be made in a way reasonably calculated to reach the affected public. Moreover, the process must allow adequate time for the decision-makers to process the public input and incorporate it into their decision-making process. For the public to be willing or interested in participating they must be certain that their views will be taken into account in the decision-making process. Finally, there must be some independent (or at least quasi-independent) body for reviewing decisions and ensuring that the requirements for informed and effective public participation have been followed.

The FCCC Parties, while committed, at least on paper, to promoting access to information, public awareness and NGO participation,\textsuperscript{32} could and should go farther in incorporating informed and effective public participation into CDM decision-making. They should commit to provide early notice to all potentially affected constituencies—local peoples, NGOs, businesses, and governments—about which areas and resources are being considered for CDM projects and a meaningful opportunity to participate in project design, implementation and monitoring. Such a commitment should take the form of a written policy on information access, public consultation and monitoring. They should provide for a transparent and appropriate process for involving locally affected peoples in decisions on CDM projects as well as in CDM project design, implementation and monitoring. The CDM must pay particular attention to issues of notice and consultation at the local level—especially with indigenous peoples and other long-term occupants directly dependent on forest resources being considered for inclusion in a CDM project.

b. Access to Information

Within the CDM there are two important aspects of access to information: notice to and consultation with the affected public about the design and certification of a CDM project. The CDM local constituencies, especially indigenous peoples and other long-term occupants directly dependent on forest resources being considered for inclusion in a CDM project, should be informed of that fact and brought into the decision-making process as early as possible.

NGOs and other individuals and groups seeking to review and assess JI projects and programs have encountered difficulties obtaining information. There is no central repository for project documents and other information about JI. Governments have also tended to view project proposals, peer reviews, and other project documents as confidential and generally have not made them available to the public, although some governments have revised this policy and now make at least some documents public. Even governments do not have access to all the critical information about the projects they review and approve. The United States, for example, does not require project developers or investors to reveal any financial information about projects, even after approval, thereby making it impossible to determine whether the project was profitable enough to be commercially viable on its own. A
sufficiently high rate of return would raise questions about additionality and might require the developer to demonstrate that other factors, such as unusual risk, limited the project’s commercial prospects.

Full public access to information about projects is critical to enable independent verification by local communities and NGOs that the CDM is working as intended, and that individual CDM projects are providing environmental and socio-economic benefits to local communities and furthering national environment and development objectives, including the goals of the FCCC. CDM projects’ legal obligations should be publicly available, so that local communities and affected peoples know their rights and the obligations of project sponsors. Making these agreements public will also facilitate implementation, compliance and monitoring by local communities.

These issues can be addressed through the adoption of a clear, written information disclosure and access policy for the CDM. Such a policy should establish the presumption that all information related to CDM projects is public, unless subject to certain necessary, limited and clearly-defined exceptions. Where private businesses are concerned, some information may legitimately be considered business confidential. However, business confidentiality must be carefully defined and narrowly construed; the locally affected public’s interest in disclosure of information must be carefully weighed against the private interest to be protected by non-disclosure.

C. Public Participation and Consultation

In addition to being informed, the CDM local constituencies, especially indigenous peoples and other long-term occupants directly dependent on forest resources being considered for inclusion in a CDM project, should be consulted in project design and invited to recommend modifications or better alternatives. Their informed consent to the project should be required before a project can be certified. They should likewise be provided with opportunities to comment on and improve proposed project designs. CDM projects should not involve any involuntary resettlement of indigenous and other long-term occupants.

Local NGOs, businesses, and governments also need to be consulted. To participate meaningfully in the CDM, they will require increased information and financial resources. At present, these requirements effectively preclude broad-based participation. Only a small number of well-financed, comparatively large NGOs and business groups are participating in JI project development and implementation. An even smaller number of organizations are involved in review of JI projects and programs. The CDM mechanism should ensure that local NGOs, businesses and governments are not excluded from consultation in the CDM process due to financial constraints or lack of information. The CDM should follow the lead of the GEF and establish a fund to promote participation of NGOs and local communities.

By nationalizing its program, Costa Rica has expanded the number of concerned constituencies that will be able to participate and receive benefits from the CDM. Initially, only a small percentage—perhaps fewer than 5%—of Costa Rican NGOs had the capacity to initiate and implement projects. Participation by small landowners and other stakeholders in forest resources were similarly limited. Under Costa Rica’s new Forestry Law, however, participation should increase markedly, as small NGOs, landowners and others will be able to receive incentives from the sale of CTOs without having to initiate and carry out individual projects.

To its credit, Costa Rica integrated several NGOs into its JI program from the beginning. The decree establishing the Costa Rican Office for Joint Implementation, OCIC, also established the Non-Governmental Specialized Technical Sector to provide technical and operational support for OCIC. Various NGOs have benefited. The Foundation for the Development of the Central Vol-
canic Range (FUNDECOR) is one example; it is responsible for assisting in the development of forest resource inventories and in developing “estimates of storage and fixation rates of biomass and its equivalent in carbon.” The Costa Rican Coalition of Development Initiatives (CINDE) is another example; it is responsible for assisting in defining international marketing strategies for JI projects as well as international promotion to attract investment in approved JI projects. In addition, the Earth Council, an international NGO based in Costa Rica, is assisting in marketing CTOs from the PAP.

The issues concerned with public consultation and participation in decision-making should also be addressed through a set of clear, written and binding guidelines. Such guidelines will assist locally affected constituencies in understanding their rights and points of access and will assist project sponsors and national governments in understanding their obligations to inform and consult with project-affected communities.

d. Access to Justice

The effectiveness of the CDM in reducing emissions of greenhouse gases will depend on how well projects are implemented and their compliance with the rules of the CDM. The CDM should include some form of review mechanism that can provide a remedy to locally-affected peoples, if CDM project sponsors fail to comply with the terms of their agreement, or to follow the requirements for information disclosure and consultation with locally affected peoples. Such a review mechanism should be independent or at least quasi-independent.

2. Encouraging the Evolution of the CDM

From early on, JI was thought of as an interim mechanism, which could lead to more comprehensive approaches, such as full-scale emissions trading. Emissions trading, however, requires participating countries to adopt national, or at least sector-wide, emissions caps, which at present non-Annex I countries are unwilling to do. The CDM should be structured to provide incentives for non-Annex I countries to gradually increase their participation in the Protocol while providing greater assurance of the soundness of CERs. This would put the CDM on a more even footing with emissions trading between Annex I countries under Article 17 of the Protocol, thereby simplifying the emissions trading regime and reducing administration and transaction costs.

Costa Rica’s regime is illustrative. As shown in Box 2, Costa Rica’s JI program has evolved through three phases. In phase one, Costa Rican JI forest projects were like those of other countries; they had restricted system boundaries, baselines limited to project sites, minimal involvement of the national government, and investments linked to specific project sites. In phase two, the country began to organize its JI forest-based activities into larger projects, although investments remained site-specific. The Private Forests Project (PFP), financed by Norway, is an example of a phase two project. In phase three, Costa Rica utilizes full national baselines, and individual investments are replaced by the sale of CTOs on the open market. The Protected Areas Project is a phase-three project.

If Costa Rica continues this process, it eventually could have all of its forest and energy based emissions included in one national baseline. By requiring Costa Rica to keep its national GHG emissions below a certain level to continue to sell CTOs (or CERs), the baseline would function just like an emissions limitation commitment, with one important exception: Costa Rica would not be in violation of any international agreement for exceeding its baseline. The only consequence would be suspension of CTO/CER sales until the country gets its emissions back on track.

Phases beyond phase three can also be envisioned. A fourth phase might require participating countries to adopt emissions scenarios that allow continued economic growth, but require actual emissions to be less than business-as-usual
by some pre-determined percentage, if the country wishes to continue selling CERs. This can be more easily accomplished if proceeds from credit sales are directed to additional emissions reductions.

In the fifth phase, developing countries that are prepared to do so could take on all the remaining obligations of Annex I countries, with two exceptions: first, developing country caps might still not be binding, but would only require them to suspend sale of CERs if exceeded; second, they would not take on any new financial obligations under either the Convention or the Protocol. Taking on full inventory and reporting obligations under Articles 5 and 7 of the Protocol would further reduce uncertainty and could make such countries eligible to participate fully in the Annex I emissions trading regime. Constraining requirements, such as discounting for uncertainty, could be dispensed with.

The Parties must be careful, however, that as developing countries phase into the Protocol, they do not introduce more of what has been dubbed “hot air” into the system. That is, national baselines and CDM “caps” must reflect realistic business-as-usual calculations in phase three and real reductions from business-as-usual in phase four. Eventually, country-by-country negotiations likely will need to be replaced by a global cap with a formula for allocating emissions allowances amongst participating countries.

3. Efforts by Annex I Countries

Article 12 allows Annex I Parties to use CERs to meet “part” of their emissions reduction or limitation commitment, but does not specify how large a part. We suggest that, in the beginning of its operations, the CDM be limited to 5% of Annex I Parties’ assigned amounts. If the CDM part is too large, it could reinforce developing country fears that they will bear most of the burden of averting climate change to the detriment of their economic development. As one of the stated purposes for the CDM is to promote sus-
tainable development in non-Annex I countries, the rules should provide participating countries with assurances that their development needs will be a primary concern, and that the CDM will not be abused by Annex I countries.

Another reason Annex I countries should accomplish most of their reductions at home is to create domestic incentives for research and development of new technology and disincentives for further development of, and investment in, technologies and activities that are harmful to the climate. The technology gap between rich and poor countries remains wide enough that, in theory at least, CDM projects can be undertaken using technology that is no better, and possibly even worse, than technology that would be deployed under a business-as-usual scenario in Annex I countries.

Several other considerations suggest that Annex I countries should have a limit on their use of the CDM. One is that the CDM itself could suffer if it is too ambitious in its early stages. If projects proliferate too rapidly, they may overwhelm the ability of the CDM to conduct adequate ex ante assessment and certification of projects and ex post certification and third-party verification of emissions reductions. Also, it will be some time before it will be possible to evaluate adequately the performance of early projects. The proliferation of projects should be constrained to allow time to learn from early projects and to use that knowledge in improving the design of later projects.

The simplest and most equitable approach is probably to allow countries to purchase CERs up to 1% of their assigned amount. Of course some countries will choose not to use their CDM purchase rights. Presumably, these countries will be able to transfer CERs amongst themselves anyway, by adding them to their assigned amounts and then selling an equivalent portion of their assigned amount through the Article 17 emissions trading mechanism. Alternatively, each year the CDM could auction an amount of CERs equivalent to 1% of Annex I Parties’ assigned amounts.
As methodologies are developed and tested, as the CDM matures institutionally, as independent evaluation provides lessons from existing projects, and as reduction commitments get more stringent, the CDM could expand its operations as well as the percentage of Annex I countries’ assigned amounts that can come from CDM activities. This presupposes, of course, that the CDM proves to be a success.

4. Balancing Energy and Forest Projects

The CDM must maintain a balance between forest and energy projects. Helping developing countries obtain clean, sustainable energy services is as important as helping them protect their forests and other natural resources. Because forest projects may be able to deliver certified emissions reductions at prices that would be difficult for energy projects to match, constraints may need to be placed on the use of forest projects.

Costa Rica’s approach offers a solution to this dilemma. By encouraging investors to purchase certified tradable offsets, which sell for a fixed price regardless of the source of the offset, Costa Rica has eliminated a major incentive for investors to prefer one project type over another. This suggests that negotiators should consider providing the CDM with some price-setting authority, or alternatively, allow the CDM to auction CERs.

5. Cost Effectiveness

Delivering cost-effective GHG reductions and removals is a primary objective of the CDM. Naturally, businesses will want to fulfill their GHG reduction obligations at the lowest possible cost. Cost effectiveness does not necessarily mean GHG reductions or removals at the cheapest possible cost, because projects may be cheap precisely because they do not include adequate safeguards for ensuring long-term climate benefits.

Forest projects, for example, can be designed to deliver carbon credits for pennies per ton. Despite the allure of such cheap projects, they may not be effective in the long term without certain safeguards—such as monitoring, enforcement, and verification—that can quickly increase the cost of the project. Environmental and socio-economic co-benefits may add additional costs. While monitoring, verification, and enforcement are staples of a functioning climate protection regime, even the costs of providing environmental and socio-economic benefits have a climate justification. Such benefits will encourage local communities to take ownership of projects, which will help ensure their long-term success.

Some of the early JI projects skimped on management, monitoring, and enforcement and were able to deliver GHG benefits at extremely low prices as a result. For example, ECOLAND relies on the government to manage and protect the lands it purchased, though it did not provide the government with any new resources to offer such protection. While the government does have a legal obligation to provide such protection, it currently lacks the human and financial resources to do so.

This problem has been recognized by the government, and appears to have been remedied in their Protected Areas Project (PAP) and their Private Forest Project (PFP). The PAP takes an approach similar to the one pioneered by ECOLAND—it uses money from the sale of CTOs to purchase private in holdings in designated parks and other protected areas. The price of a CTO, which ranges from $10-20 per ton of carbon equivalent, is sufficient to provide substantially more protection to acquired lands. A significant portion of this money will go into a trust fund for the support of government monitoring and enforcement activities.

The price of carbon offsets from the BIODIVERSIFIX project was considerably higher—in the same range as CTOs. It is also more ambitious than the ECOLAND project and takes
an entirely different approach to both sequestration and forest management. It is an effort not merely to protect an ecosystem, but to rebuild one that is on the verge of collapse. Unlike ECOLAND, which sets the forest off limits to all economic activities (with the possible exception of ecotourism), BIODIVERSIFIX is designed to be a protected area, a working forest, a biological preserve, and a scientific research center all in one. A large portion of funds raised through the sale of offsets will go towards management and protection. The project hires and trains local citizens to manage the forest, replacing some of the jobs that have been lost in the region as cattle ranching collapsed. While it provides fewer jobs than ranching did, the jobs it does provide are higher paying and higher skill.

A comparison of ECOLAND and BIODIVERSIFIX raises an important question: given that the two projects existed at the same time, and in close proximity, why would an investor pay the high price of carbon offsets from BIODIVERSIFIX rather than the lower price offered by ECOLAND? The question may reveal an inherent flaw in the purely “free market” approach to CDM projects. Just as in any competitive market for a product, without regulation CDM projects could externalize production costs, such as leakage, biodiversity loss, soil-erosion, wetlands loss and socio-economic damage.

Another related danger is that, in an unregulated carbon market, projects and governments will compete against each other to sell their offsets, bidding down the price in the process. To a degree, of course, this is how emissions trading and related approaches, such as the CDM, reduce overall costs. Without the proper safeguards, however, the price could easily drop below the level where the project provides any benefit to the host country or even the level at which climate benefits can be assured. Hence, it is imperative that all national benefits and safeguards mentioned here—management, monitoring, enforcement, verification, and environmental and socio-economic co-benefits—be mandated in the rules of the CDM.

Beyond that, it may be desirable for the CDM to include in its functions some ability to set prices, as Costa Rica does with its CTOs. This will help prevent price wars amongst project developers and host governments and maintain a price level that provides benefits to the local community, the host country, and the planet.

There is another category of costs—the cost of transacting CDM projects—which benefits neither the investor nor the environment. While due diligence requires a certain amount of time and expense to protect all the parties to the transaction, efforts should be made to reduce these costs as much as possible. High transaction costs not only will limit the environmental benefits that projects can deliver; they also could greatly reduce the number of participants in the CDM. Local NGOs and businesses may be particularly hard pressed to raise the money necessary to develop expensive projects.

Without diminishing the importance of the environmental and socio-economic benefits inherent in Costa Rica’s nationalization of JI, this approach may have been adopted more for the purpose of lowering transaction costs than to reduce uncertainties stemming from baselines and leakage. In any event, we can say that Costa Rica’s national approach both to developing and marketing projects: 1) provides greater certainty with respect to climate benefits; 2) ensures that projects provide environmental and socio-economic co-benefits; 3) provides a stable price for offsets and prevents damaging price wars; and 4) lowers transaction costs, thereby increasing the efficiency and cost effectiveness of projects.

6. Independent Evaluation

Independent evaluation of current AIJ projects is essential in carrying lessons learned from the pilot phase over to future JI and CDM projects under the Kyoto Protocol. The concept underlying JI and the CDM—of using investments in other countries to help satisfy a Party’s climate obligations—is both unique and ambitious. A full
independent evaluation should be conducted to inform the design of the JI and CDM mechanisms before their final structures becomes crystallized.

The need for independence in the evaluation process is critical. At present, the main source of information about pilot phase JI projects are reports from host and sponsor countries who have every incentive to over-state the benefits of projects. Neither the secretariat nor any other third party verifies or evaluates these reports. As a result, the reports may lack balance and rigor, making them unsuited to provide comprehensive information upon which an informed decision may be made by the COP regarding the future of JI projects and the CDM.

The evaluation should be comprehensive and inclusive, inviting the views of a wide range of sources other than the current national authorities. It must enlist the inherent interest of local communities in ensuring that projects meet their needs and the interest of NGOs in ensuring that environmental objectives are being achieved. The process must also enable greater sharing of information between project participants and educate policymakers as they elaborate the CDM framework.

The current lack of systematic project evaluation is clearly unsatisfactory in light of the importance of the decisions that have still to be made regarding JI and the CDM. Policy makers must decide critical issues relating to climate change, development and North-South relationships on the basis of inadequate data. Any limitations in drawing conclusions from the pilot projects are well understood and can be factored into the evaluation process.

Independent evaluation should not only instruct the design of the CDM, but should be an integral part of the institutional structure that oversees its activities in the future. Periodic evaluation would help ensure that resources provided through the CDM are being used efficiently to obtain the maximum social and environmental benefit.

E. The Legal and Institutional Framework

A legal and institutional framework must be in place before project crediting can begin. If this framework is not in place and project credits are accepted, investors and host countries will create a de facto framework through their actions. This could lead to serious imbalances and flaws in the framework, threatening the integrity and legitimacy of the CDM.

Article 12 lays out the beginnings of an institutional framework. The CDM is to be subject to the authority and guidance of the COP/MOP, which must:

- elaborate modalities and procedures with the objective of ensuring transparency, efficiency, and accountability through independent auditing and verification;
- ensure that a share of the proceeds from certified project activities will cover administrative expenses and assist in meeting the costs of adaptation for particularly vulnerable developing country Parties;
- determine what “part” of Annex I Parties’ quantified emissions limitation and reduction commitments may be met with CERs.

An executive board is to supervise the CDM, and emissions reductions resulting from project activities are to be certified by operational entities.

1. The Executive Board

Article 12 of the Protocol calls for establishment of an executive board to supervise the CDM. While it is not expressly stated, the task of establishing the board probably falls to the COP/MOP.

- The structure and composition of the executive board must reflect a careful balance between developed and developing country interests. Several such executive bodies already exist for other institutions. One is the Council of the Global Environment Facility. Another is the Executive Committee of the Montreal Protocol Multilateral Fund. Both of these institu-
tions utilize a two-tiered voting structure that gives developed and developing countries equal say.

- The executive board should coordinate its activities with the GEF Council to ensure that the work of the two institutions is complementary and not competitive or redundant. There is a natural divide between GEF and CDM projects. The GEF could finance cutting edge projects utilizing technology that might be deemed inappropriate for CDM projects. It also could fund infrastructure development and capacity building to support CDM activities. The GEF even has a mandate to assist vulnerable developing country Parties with adaptation.

  As reflected in Article 12, the executive board should provide “guidance” for both public and private projects.

2. Operational Entities

The COP/MOP must also designate operational entities that will certify project activities and emissions reductions. To avoid conflict of interest, operational entities should not be organizations that are themselves helping to finance projects (e.g., the World Bank and regional development banks). If such institutions are designated as operational entities, however, certification should be limited to an interim determination that the project meets all the specified criteria and guidelines and a periodic or final determination that the project and all resulting emission reductions have successfully passed a full independent audit.

3. Criteria for Certification

For CDM project activities to be certified, climate benefits must be real, measurable, and long-term; and the resulting emissions reductions must be additional to any that would occur in the absence of the certified project. As discussed in this report, this means that:

- benefits must be conservative, and CERs must be discounted for that uncertainty;
- emission reductions may be certified only after they have accrued and been verified by an independent audit;
- the temporal dimension of greenhouse gas emissions must be fully accounted for on a ton-year basis.

4. Contributing to Sustainable Development

Project activities also must contribute to the sustainable development of non-Annex I Parties. This means that:

- activities must not harm natural forests, biodiversity, or other environmental assets;
- environmental impact assessments should be conducted to identify both positive and negative environmental impacts;
- where opportunities are identified to enhance biodiversity, though at a higher cost, co-financing arrangements should be made available;
- the CDM should require that project benefits be shared with local communities and long-term forest dwellers;
- the CDM must promote the development of domestic institutional capacities to allow host countries to evaluate proposed CDM projects and monitor their outputs;
- the CDM must promote the development and transfer of technology that provides maximum environmental benefit while complementing the social, economic and technical settings of host countries;
- the CDM should maintain a balance between forest and energy projects to ensure that the CDM promotes sustainable development in both these key sectors.

5. Ensuring Transparency and Public Accountability

Article 12 requires the CDM to be transparent, efficient, and accountable. This requires that:

- independent auditing and verification be required and all complete audits made available to the public;
the COP/MOP must also develop clear, detailed modalities for independent auditing and verification, so as not to exacerbate existing problems of incomplete data and lack of comparability between reported information;

- All affected constituencies must receive early notice about which areas and resources are being considered for inclusion in CDM activities. These constituencies must have a meaningful opportunity to participate in project design, implementation, and monitoring;

- in particular, long-term occupants directly dependent on forest resources being considered for inclusion in a CDM project must be asked for approval and invited to recommend modifications or alternatives and to share in the benefits of the project;

- projects should not be planned on indigenous lands without their prior consultation and approval. Involuntary resettlement of long-term residents is not an option.

6. Covering Administrative Expenses and Assisting in Adaptation

The CDM will need to raise sufficient funds to cover the cost of administrative expenses and assisting in adaptation. This means that:

- proceeds from auctioning CERs (or similar mechanisms) should be used to assist in arranging funding of certified project activities, as required by Article 12.6, and covering administrative expenses and assist in meeting adaptation costs. The CDM could acquire the necessary funds by retaining a certain share of CERs generated by projects.

- the cost of CERs should be linked to the cost of adaptation to climate change; hence the greater the need for countries to adapt, the higher should be the price of CERs.

7. Determining What Part of Annex I Commitments May Be Met with CERs

The COP/MOP must determine what "part" of Annex I Parties' quantified emissions limitation and reduction commitments may be met with CERs. The CDM should start small and grow as it learns. Initially, CERs should probably be limited to no more than 1% of a Parties' assigned amount. If the CDM is successful in achieving climate benefits during a pilot phase, this number could increase. When the 1% cap is reached, the COP should evaluate the CDM to determine whether the cap should be increased.

Some have objected that it would be very difficult to administer a cap on CDM projects. A simple approach would be for the CDM to auction CERs. No country need be limited in the amount that it buys, except to the extent that the total amount of CERs sold could not exceed the cap. Since Annex I countries presumably could purchase CERs from each other, no purpose would be served by limiting the portion of the total that could be purchased by any of them. Auctioning also might allow the CDM to assist in arranging funding of certified project activities, as required by Article 12.6, and would help non-Annex I countries capture some of the difference between the marginal price of reductions in Annex I and non-Annex I countries.

8. Financial Additionality

Financial additionality requirements should be mandated as well. Government funds to the CDM must be additional to GEF, IDA and other existing development assistance. This is very important because donor countries may have more incentive to finance the CDM than other development assistance institutions. For example, Annex I Parties, faced with the choice of financing the GEF and receiving global benefits, or financing the CDM and receiving CERs, will be tempted to put all their money in the CDM.


After the pilot phase, the CDM should review the need for conditioning the participation of non-Annex I Parties in the CDM on their agreement to increase their level of participation in the CDM and the rest of the Protocol regime, including developing sectoral or national baselines below
business as usual, adopting full inventory and reporting requirements, and perhaps establishing national caps.

10. Consistency with International Norms

Project activities should not undermine other international environmental and human rights norms. This means that:

- the CDM should require that projects be consistent with the requirements of other international environmental agreements and international human rights norms;
- countries should only be allowed to participate in the CDM to the extent they are in substantial compliance with other major environmental agreements and international human rights norms to which they are parties;
- CDM project activities should not be allowed on indigenous lands or territory without their informed consent and participation in the design and implementation of the project.

11. Vintaging of CERs

The location, date and project resulting in certified emission reductions must be identified on each CER. Tracking of CERs through this type of vintaging is essential for maintaining the integrity of the CDM. Identification of the project also allows buyers to choose the projects in which they want to invest, based on type of activity, integrity of project infrastructure and likelihood of project success.

12. Early Start for the CDM

Article 12.10 permits emissions reductions obtained between 2000 and 2008 to be used during the first commitment period provided that they have been certified by operational entities. These entities are to be selected by the COP/MOP, however, which means they are unlikely to be operational by 2000, or perhaps even much before the start of the commitment period. Consequently, any projects that begin before that date do so at their own risk. This suggests that:

- the COP, prior to the first meeting of the Parties, should provide guidance regarding what types of projects will be eligible for certification, possibly including retroactive certification.

13. An Interim CDM Pilot Phase

The CDM, and all of its institutional parts, should operate an interim pilot phase for the first several years. Other similar financing mechanisms, including the GEF, the Montreal Protocol Multilateral Fund, and activities implemented jointly under the FCCC, have gone through pilot phases. While they experienced varying degrees of success, all of these mechanisms were either improved during their pilot phase or, in the case of AIJ, replace by a different and hopefully better mechanism. An interim phase would give the Parties an opportunity to experiment with and evaluate the mechanism, and make mid-course corrections where needed.


The CDM should be informed by experience of the JJ pilot phase (AIJ). Much work has already been done on methodological issues, such as additionality, baselines, leakage, project duration, monitoring, and verification. This information should be considered in the design of a set of standard methodologies for CDM projects. This could be accomplished as part of an independent evaluation of existing AIJ projects. In addition, any CDM pilot phase should be subject to an independent review and evaluation.

In conclusion, the CDM should require that all projects internalize all social and environmental costs, over the long-term. Subject to other principles elaborated herein, projects should be selected on their basis of cost-effectiveness in achieving climate benefits, taking into account all social and environmental costs.
Endnotes


2 Throughout this report, we will refer to countries as Annex I countries or non-Annex I countries. Annex I countries, which currently include all developed countries and countries in economic transition, have accepted specific obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Non-Annex I countries, which generally are the developing countries, have not accepted any quantified emission limitation or reduction commitments under the climate regime.


6 Id. at Art. 2

7 Id. at Art. 4.1(d)

8 The concept of JI was controversial from its inception. The negotiations in Kyoto, specifically the discussions that produced the CDM, attempted to reconcile the differences of opinion and the varying interests surrounding the JI mechanism.


10 When the funder is a not-for-profit conservation organization, as is sometimes the case, the issue is less clear cut. Funds not invested in JI may be invested in other projects that have the same, or similar, carbon benefits. Once the CDM is in operation, however, it is unlikely that much of its funding will come from non-profits. Furthermore, the decision to invest in projects that generate carbon credits is probably one that should be left for these organizations to make for themselves.

11 Of course, if the final result of both natural and enhanced regeneration is equivalent (mature forest of the same species mix), there will be a point in time when removals of GHGs from enhanced regeneration are less than they would be under natural regeneration.

12 The “system” is the project plus all area where impacts from the project can be anticipated.

13 See Part II.D.3.c for a discussion of the Supreme Court’s ruling that it is the obligation of the government to compensate individuals whose lands are affected by highly restrictive environmental regulations, such as those in national parks and biological preserves.

14 For the PAP the baseline was estimated for 1997 based on existing land use (primary forest, secondary forest or pasture), legal status of protection (national park or biological reserve), life zone (10 in total), current land tenure status (7 categories in total), carbon potential and local deforestation rates.


17 While Costa Rica does not modify its baseline ex post, it does adjust the size of its buffer to account for uncertainty related to the accuracy of the baseline.

18 “Reductions in emissions [shall be] additional to any that would occur in the absence of the certified project activity. . . .” (emphasis added). “The clean development mechanism shall assist in arranging funding of certified project activities as necessary.” Kyoto Protocol at Art. 12.6.

19 “Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol. . . .” Kyoto Protocol at Art. 12.5.

20 “The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.” Id. at Art. 12.7.

21 This conundrum was devised by Franz Tattenbach, the director of Oficina Costarricense de Implementacion Conjunta, Costa Rica’s JI office.
The Biodiversity Convention, for instance, requires Parties to cooperate, as far as possible and as appropriate, regarding matters of mutual interest for biodiversity conservation and sustainable use, through competent international organizations where appropriate. Clearly any activities relating to biodiversity within the CDM would fall into this requirement. The Biodiversity Convention also requires Parties to integrate, as far as possible and appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies. See Convention on Biological Diversity, 5 June 1992. 31 I.L.M. 818 (1992) at Art. 5. The decision whether to include forest projects in the CDM, and the design of such projects if they are included, would seem to fall within the scope of these obligations.


FCCC at Art. 12; Kyoto Protocol at Art. 10 (c) and (d). See also Rio Declaration, at Principle 10.


As far as we know, the study by CIEL and CEDARENA is the only independent, on-the-ground review of JI projects to date.


Excess allowances granted to non-Annex I countries when they assume caps has been given the whimsical name “tropical air.”

CIEL proposed one such tradable permit allocation system, whereby countries would initially receive allowances based on their historic emissions levels, but allocations would gradually shift so as to provide each country with equal per capita emission rights. During this period, the global cap would be reduced to a level that was ecologically sustainable. This approach has come to be known as “contraction and convergence.” [See Donald Goldberg, “Reducing Greenhouse Gases: A Combined Strategy Using Fees, Permits, and Country Commitments,” Duke Environmental Law and Policy Forum (1995): Volume III]. Other approaches for equitably distributing emissions rights have been suggested, including allocations based on GDP, on energy consumed per unit of GDP, or even on national land area. Of course, hybrid systems that account for several of these factors could also be devised. It has even been proposed that any “equity” formula be based, not on the presumed right to emit, but on the right to receive clean energy services.

A large portion of the project is dry tropical forest, an ecosystem type that has almost entirely disappeared from the Western Hemisphere.
Pilot Phase Joint Implementation Projects in Costa Rica

A Case Study

by
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A. Introduction

Costa Rica has been a leader in the development of joint implementation pilot projects under the United Nations Framework Convention on Climate Change (UNFCCC). Article 4 of the UNFCCC allows Parties to the Convention to develop projects in conjunction with other Parties, or their citizens, to mitigate or prevent emissions of greenhouse gases through the use of the joint implementation or JI mechanism. To this end, Costa Rica has officially established and supported the governmental Costa Rican Office for Joint Implementation (Oficina Costarricense de Implementación Conjunta, OCIC). OCIC has reviewed, approved and helped promote a significant number of privately developed and managed pilot projects and has also pioneered the development of new frameworks for large-scale public and public-private JI forest conservation, regeneration, and tree plantation initiatives in Costa Rica.

OCIC has called privately developed and implemented initiatives “First Generation” or “First Phase” projects. These projects were the first to be developed, and OCIC’s participation in their implementation was for the most part limited to project review, approval and promotional assistance. Based on its experiences with these private projects, OCIC has gone further, developing proposals for larger scale, nationwide JI projects with very active governmental participation. OCIC refers to these proposals as the Second and Third Generation of JI projects, and has set forth these proposals as possible models for JI programs in other countries. The nationwide proposals have taken the form of two broad “umbrella projects.” Through these proposals, the Ministry of the Environment and Energy (MINAE) is seeking JI funding to provide payments for environmental services, reforestation and forestry projects with private landholders (the Private Forestry Proposal, PFP) and to consolidate the nation’s system of national parks and biological reserves (the Protected Areas Proposal, PAP). In order to fund both proposals, the government of Costa Rica is offering investors carbon mitigation by means of a system of “Certified Tradable Offsets (CTOs),” through which the Government of Costa Rica guarantees carbon mitigation in the name of the buyer of the CTO. The price of these CTOs was US$10.00 per ton of carbon under an agreement with the Government of Norway and now the price of a CTO is US$20.00 per ton of carbon.

Those familiar with the JI debate but unfamiliar with Costa Rica might be surprised that a primary motivation for the government’s strong interest in promoting this mechanism has been its view that JI offers a promising source of funding to protect the world’s biodiversity. Thus, the principal focus of OCIC’s efforts to date has been forest preservation, forest regeneration and tree plantation carbon sequestration projects. Energy projects have been developed more recently, although mostly promoted by private parties. This strong interest in biodiversity conservation is fully consistent with the country’s long history of leadership and innovation in this area among developing countries worldwide. In this vein, Costa Rica has established what is by far the most complete and representative system of protected natural areas in Central America. Costa Rica has long been a major center for
tropical biology research, with important research stations in various parts of the country. It was a pioneer in using debt-for-nature swaps to fund conservation, and with the creation of the non-governmental National Biodiversity Institute (INBIO), Costa Rica has become a world leader in biodiversity prospecting. INBIO has committed to donate a significant portion of any profits realized from its activities to further consolidate the nation’s public protected areas system. Private conservation efforts have protected significant areas of tropical forest and Costa Rican NGOs are beginning to use conservation easements in Latin America in order to help ensure biodiversity protection on private lands.

Indeed, Costa Rica has envisioned, and to a significant degree has created, a “biodiversity industry,” where conservation and use of biodiversity through prospecting, tourism, research, regulation of water supplies and mitigation of greenhouse gases is seen as an important element of the economy. In the context of JI, the existence, health and growth of this industry can and should be seen as a form of guarantee that carbon sequestered in forests will remain there.

However, despite much progress in the area of biodiversity conservation, Costa Rica also faces severe threats to its environment. Before 1990, deforestation rates in Costa Rica were among the highest in Latin America, and efforts to control deforestation outside National Parks and Biological Reserves have been mostly ineffective. Costa Rica has much to do to control illegal deforestation. As a result of deforestation and poor land management, erosion is a serious problem, threatening agriculture and silting up hydroelectric facilities, on which the country is largely dependent for clean power. Damaging floods in recent years have also been blamed in part on deforestation.

Several factors have contributed to the rate of deforestation. A large percentage of lands within declared protected areas remain in private hands and are often poorly managed. Land use planning has not been consistently undertaken or implemented. As a result, a great deal of the national territory is being put to uses for which it is not suited, or for which better uses exist.

In addition to mitigating greenhouse gas emissions, if fully operational, JI could also contribute significantly both to consolidating Costa Rica’s achievements in biodiversity conservation as well as addressing some of its major environmental problems. For example, OCIC is proposing through the PAP that JI funds invested in land use projects could be used to consolidate the nation’s system of protected areas, adding to the sequestration of carbon and preventing its release through forest loss, in addition to biodiversity benefits. Through the PFP, OCIC has also proposed that JI be utilized in reforestation projects in watersheds and on lands whose proper capacity calls for forest cover, thus sequestering carbon, reducing erosion, mitigating flooding, improving hydroelectric generating potential, and improving the quantity and quality of water supplies. Further, JI funding devoted to the production of hydroelectric and wind energy, energy conservation and efficiency or to the promotion of cleaner transportation technology could reduce emissions of greenhouse gases and improve local air quality, as well as provide significant economic benefits. Because of the inherent flexibility of the mechanism, JI can be applied creatively to effectively address a large number of local environmental problems. The great potential of JI to generate significant environmental and other benefits in project host countries, if the projects are well designed and executed in addition to its emissions mitigation potential is an issue that has not received sufficient attention.

This report will present an introduction to the political, economic, legal and institutional framework affecting pilot JI forest projects in Costa Rica. The purpose of the report is to present
a picture of how local rules, institutions, and other conditions can help or hinder the development and execution of JI forest projects, and offer observations and recommendations on the development of JI projects based on the Costa Rican experience. The report will attempt to address the issues of additionality, methodologies employed for determining baseline data, verification, leakage, and insurance in the context of both the current international debate on joint implementation and the actual pilot forest projects being developed in Costa Rica. The report will address both private and public participation in pilot JI forest projects. While the focus of this report will be on Costa Rica, it is hoped that it can also provide insight into potential opportunities and problems that might be faced in other developing countries, particularly those in Latin America. The authors also hope to introduce a dose of real-world experience to an extremely important worldwide debate about the pros and cons of JI that has been almost entirely theoretical.

B. General Background to Joint Implementation in Costa Rica

In many ways, Costa Rica is unusual both as a developing country and as a Latin American Republic, a circumstance which should be taken into account when considering JI projects in this country as a model for projects in others. While currently emerging from a serious economic recession, Costa Rica has been relatively prosperous, particularly in contrast to its Central American neighbors to the north. Costa Rica abolished its army in 1949, and President Oscar Arias Sánchez won the Nobel Peace Prize in 1987 for the development of a peace plan which led to the end of civil wars and democratic elections in Nicaragua, El Salvador, and Guatemala. There is a high level of literacy and life expectancy, a social security system, and accessible health care throughout the country, although high levels of immigration from other Central American states over the past decade and a half have placed burdens on social and economic support systems and services. Free, non-violent and fair elections have occurred regularly every four years since the revolution of 1948. While corruption and lax enforcement of some laws have caused some problems, these are less serious than in other developing countries in Latin America and around the world. As noted, Costa Rica is also a leader in the conservation and productive use of biodiversity, with approximately twenty-five percent of its land area included under one category of protection or another (although, as will be shown, different categories of protected areas do not receive equal protection). Largely as a result of its relative tranquility and reputation for conservation of its abundant natural resources, tourism has joined agriculture and light industry as a keystone of the economy. For these reasons, Costa Rica is viewed as having a favorable investment climate for a developing country.

Costa Rica signed the FCCC in Río de Janeiro on June 1992, and the Convention was ratified by the Legislative Assembly in June of 1994. Also, by Law N°7513, published on July 13, 1995, Costa Rica ratified a Central American Agreement on Climate Change. With a view to implementation, Costa Ricans and their partners from other countries began the development of pilot JI projects soon after the FCCC came into effect. One of the earliest comprehensive proposals, the Esquinas Carbon Offset Land Conservation Initiative (ECOLAND) was completed in 1994, and implementation of the project began soon afterwards. ECOLAND, which used funding from a U.S. utility company and a private U.S. foundation to buy private lands for inclusion in a public national park, has been fundamentally completed, with the parties presently negotiating the terms of the transfer of the land from COMBOS, the non-governmental organization that purchased the lands from their owners, to the government. When this occurs, and when adequate protection is ensured by the government, ECOLAND will be the first successfully completed pilot JI forest project in the world.
Several other early private pilot JI forest projects were being developed at this time, including CARFIX, BIODIVERSIFIX, and KLKIFIX. Each of these is discussed in Section IV.

The present administration of President José Figueres Olsen has taken a strong interest in JI in Costa Rica, and developing a highly active JI program has been one of the highest priorities of Minister of the Environment and Energy René Castro Salazar. As noted above, the prospect of using joint implementation to consolidate Costa Rica’s national system of protected areas led the administration to concentrate first on developing and promoting forest projects. The ministry helped shape the basic forestry law, that was then undergoing revision, to include the basic framework for two large-scale public and public-private JI pilot projects: one to consolidate land ownership in National Parks and Biological Reserves and to help pay for their protection, and another to provide incentives for reforestation, sustainable management and forest protection on private lands. These projects will also be discussed below in Section IV.

Another early accomplishment of the Figueres administration was the signing of a letter of intention between the governments of Costa Rica and the United States in September of 1994. This letter established the intention of both parties to jointly explore the potential for developing JI projects. A more recent accomplishment was the signing of an agreement with the government of Norway and a consortium consisting of three Norwegian corporations. The agreement calls for the government of Norway to contribute an initial financing of US$1.7 million, from a Norwegian fund for joint implementation funded by a tax on gas, and the consortium to contribute US $0.3 million to a combined reforestation and hydroelectric power pilot JI project. The initial goal of the project is to reforest 1,000 hectares of private land in the watershed of the Rio Virilla, and to upgrade a hydroelectric facility located on the river. This project is taking place within the framework of the PFP, discussed in Section IV C.

Other recent developments include the offering for sale of CTs by Centre Financial Products and a contract with the Swiss firm Société Générale de Surveillance (SGS) to undertake certification for the PAP. The four main elements of the assessment by SGS are: a) suitability analysis; b) scientific methodology assessment; c) quantification of carbon offsets; d) risk and uncertainty assessment.

C. Forestry and Conservation in Costa Rica

As noted, the strengthening of the sustainable forestry sector and the consolidation of the nation’s system of protected areas have been primary focuses of JI activities in Costa Rica to date, and are the subject of OCIC’s two nationwide JI proposals, the PFP and the PAP. In order to understand how JI forest projects in Costa Rica will work in practice, an introduction to forestry and conservation issues is essential. In addition, Costa Rica has recently undertaken an important study of the location and condition of the nation’s biodiversity, in order to set priorities for government action in promoting both sustainable forestry and conservation. This study, undertaken by an inter-institutional and multidisciplinary commission known as GRUAS, is also being used as the basis for guiding the investment of resources obtained through MINAE’s nationwide JI projects.

I. Regulation of Forestry Activities

Before the arrival of Columbus in 1502, 99.8% of Costa Rica’s territory was covered by forest. Early in the 19th century the introduction of crops like sugar cane, tobacco and coffee led to the deforestation of the Central Valley, and by the end of that century the expansion of cattle grazing activities to other areas of the country initiated a process of deforestation of mountainous areas and other fragile lands. This process
of deforestation has continued, and has been particularly strong in the last half century.

The expansion of agriculture and the consequent destruction of forest was actively promoted by governmental policies, particularly the agrarian reform legislation, which was highly favorable to those seeking to cultivate unused land\textsuperscript{12}. It also implemented rural land titling programs\textsuperscript{13}, and established agricultural subsidy programs for cattle ranching and agricultural plantations\textsuperscript{14}. For most of this period, the creation of an efficient and sustainable forestry industry was a relatively low priority for either the government or private interests, and much valuable timber on lands cleared by settlers was burned, misused, or left to rot. Eventually this situation became more evident and the need for regulations dealing with the proper use and conservation of forests gained more attention from Costa Rican authorities.

However, public concern for the preservation and sustainable use of natural resources in Costa Rica is not a recent development. Even before Costa Rica became an independent country in 1821, some legal provisions existed to address forest protection. A striking example of this early concern was a proclamation issued in 1775 by Spanish governor Don Juan Fernandez de Bobadilla, prohibiting burning fields and forests since “the practice is followed by sterility of the soil.”\textsuperscript{15} However, it was not until 1969 that forested lands became subject of specific regulations that promoted not only the proper use and conservation of forests, but also provided an institutional structure for implementation. Beginning in 1969, the government of Costa Rica passed legislation to control forestry activities through a system of permits and management plans. However, these proved to be largely ineffective in slowing forest loss. This law also created the Forestry Service as an agency of the Ministry of Agriculture and Livestock. It was not until 1978 that the first Forestry Development Plan was published, although it was never implemented. Most of the problems faced by the Forest Service were attributable to the dearth of economic resources and the lack of proper training in sustainable forestry practices, the very low profile that forest products had in the national economy, and an inadequate legal and institutional structure.

By 1979, the government began to apply incentives to promote reforestation activities, originally allowing persons investing in reforestation to deduct the costs associated with this activity from their income taxes.\textsuperscript{16} Further incentives included exemptions from property taxes\textsuperscript{17} and an income tax exemption on earnings from reforestation. In 1983, the government, acting through public banks, also created trusts to finance tree plantations through low interest loans for terms as long as 30 years. However, sufficient funds were not committed, and few landowners showed interest in investing in this activity. In 1986, the government attempted to further stimulate reforestation by private landholders by passing a new forestry law\textsuperscript{18} which authorized Forestry Bonds (Certificados de Abono Forestal -- CAF), freely negotiable tax credits, in a given amount per hectare. While these incentives did stimulate reforestation, there were also abuses, as some investors accepted credits without fully meeting their reforestation obligations, or cleared native forest in order to reforest and collect CAF incentives. In addition, inexperience also added to the negative environmental impacts of these early reforestation programs: plantations were badly managed, poor quality seed was often used, and there was heavy reliance on non-native species.\textsuperscript{19}

In February of 1996, a new forestry law was passed which established a new framework for both control of forestry and incentives, and also set forth the basic legal framework for the large-scale joint implementation forest projects currently being implemented by OCIC, including for the first time, the concept of environmental services.\textsuperscript{20} The new forestry law contains significant departures from past forest regulation practices. In relation to actual and proposed AJJ
or JI initiatives, perhaps the most important are provisions providing for payments to compensate private landowners who protect natural forests for the environmental services\textsuperscript{21} that these forests provide, as well as measures to de-regulate production, processing and marketing of trees grown in plantations. Incentives for the provision of environmental services include direct payments, exemption from payment of property taxes, and protection from land invasions through a summary legal procedure to quickly and efficiently evict squatters.\textsuperscript{22} Regarding tree plantations, the new forestry law would treat plantation-grown timber in the same way as any other agricultural product, requiring for the processing and commercialization of this timber a certification of origin.\textsuperscript{23} These aspects of the new forestry law will be discussed in greater depth in the discussion of MINAE's PFP, below.

In other ways, Costa Rica's forestry sector is at a critical point, facing opportunities that could greatly increase the contributions of forests to the national economy and elevate their importance in the public eye. For example, a crisis in the cattle industry caused by falling prices and increased competition from imported meat has led to the noticeable abandonment of grazing in many areas of the country, and pastures are giving way to spontaneous regeneration of forest for lack of ready land use alternatives. Owners of small to medium size properties are becoming increasingly involved in forestry and reforestation activities, and have begun to join together to promote their interests in this area. JUNAFORCA, a leading coalition of such landowners, has joined together 67 local organizations to work towards promoting favorable forestry policy. In terms of JI, these circumstances offer the promise of the availability of significant amounts of land for reforestation or forest regeneration, provided that economic incentives are available in the short-to-medium term to help stimulate this activity. Besides, JI offers an opportunity to internalize the costs of other environmental services provided by the forest. While JI could provide the mechanism for such incentives, markets for forest products must also be strengthened to make these activities sustainable. The rise of tourism to become the leading Costa Rican export, and the high level of dependence of this activity on the availability of natural areas and vistas, has also helped contribute to a rise in the value of forested lands, as well as to increase the attractiveness of nature conservation as a use of private lands.\textsuperscript{24}

2. The National System of Conservation Areas

While facing significant difficulties in the control of deforestation on private lands, the government of Costa Rica has in great measure successfully established an extensive system of protected areas. Throughout the history of the nation, legislation has been enacted seeking to protect important natural resources. The first significant protected natural areas were established in the 1960s, largely the result of initiatives by highly motivated persons or groups both within and outside of government, but with little material or political support. However, by the 1970s environmental conservation consciousness had expanded dramatically, and a significant number of important national parks were legally established throughout the country during this decade. This created the basis for the present protected areas system, although sufficient resources for proper protection and management were still lacking.

The first area to be protected was Cabo Blanco in 1963 as a natural reserve, followed by Santa Rosa and the Poas Volcano, declared as national parks in 1971. By 1977, the legislative Assembly passed the Law for the Creation of the National Parks Service, which created an administrative and legal framework for the management of National Parks, and also established highly restrictive limitations on activities within areas declared to be national parks.\textsuperscript{25} While extremely important for the consolidation of the new and growing parks
system, the restrictions in this law, which prohibit the undertaking of any commercial activities within park borders, have hampered attempts to make the National Parks economically self-sufficient.26

The Forestry Law of 198627, re-enacted in 199028 with minor modifications, established much of the basic framework for the present protected areas system. This law created a number of categories of protected areas, including National Parks, Biological Reserves, National Wildlife Refuges, Forestry Reserves and Protectorate Zones. In so doing, it established what would be a critical distinction between National Parks and Biological Reserves on the one hand, and other categories of protected areas on the other: according to the law, lands within National Parks and Biological Reserves were required to be purchased by the state, while lands within the other categories were permitted to remain in private hands.29 Partially as a result of this distinction, National Parks and Biological Reserves have been far better managed and protected than other categories, where deforestation has continued. This continues to be a crucial factor in protected areas management in Costa Rica, and for MINAE’s JI forest conservation proposal, the PAP.

The division in management criteria for different categories of protected areas was for many years exacerbated by an administrative framework which placed National Parks and Biological Reserves under the control of the National Parks Service, Forestry Reserves and Protectorate Zones under the administration of the Forestry Department, and National Wildlife Refuges under the supervision of the Wildlife Service. The management of different categories of protected areas by different agencies led to wide variation in the ways in which the different categories of resources (e.g. timber and wildlife) were managed, with little consideration for rational management of broader ecosystems. While each of these departments operated within a single ministry,30 they were highly centralized in offices in San Jose. A lack of cooperation among the agencies resulted in a duplication of work, a waste of resources, and a lack of trust.

Since the late 1980’s, Costa Rica has moved towards decentralization of the nation’s system of protected areas into regional units called Conservation Areas, which typically include several protected areas of various categories as well as surrounding lands. Similar to the concept of ecosystem management in the United States, the Conservation Areas approach involves the management of different types of areas under a single administrative unit. The National System of Conservation Areas (SINAC) has been formed in the last few years to serve as the single administrative body responsible for the administration of these areas and the application of relevant legislation. The formation of SINAC consolidated the National Parks Service, the National Forestry Department and the Wildlife Service into a single agency. The personnel that previously worked for these different agencies now work together. SINAC has decentralized the organ by opening 11 regional offices for each of the country’s Conservation Areas.

The Conservation Areas approach has a number of advantages. The simplified administrative structure and the decentralization of
personnel and services saves scarce government resources and increases the capacity of the government to provide technical support in the field, close to managed resources and to affected persons and communities. This approach aims to manage each Conservation Area as an integrated whole, rather than focusing on individual protected areas as it has in the past. Placing different categories of protected areas under the administration of a single administrative unit rather than three separate agencies also helps depoliticize protected areas management and helps assure that all categories receive adequate attention. The Conservation Areas approach also seeks to improve the relationship of governmental authorities with local communities and to improve local attitudes towards protected areas by improving services and making the administration of protected areas more responsive to local needs.

Despite the advantages of the new system, problems remain. A strong legal framework for SINAC does not as yet exist. While a draft law to formalize the reorganization and decentralization of protected areas management was submitted to the Costa Rican Legislative Assembly in 1991, it has not yet become law. Instead, SINAC has operated under a series of executive decrees which outline its responsibilities and obligations. While these decrees, which do not require the approval of the Legislative Assembly, do lend a legal basis to the activities of SINAC, they can be overturned or altered by subsequent administrations without legislative approval. Other problems facing SINAC include bureaucratic resistance to decentralization and changes in procedures and responsibilities, and lack of personnel and other resources.

Several laws passed in the past few years -- The Organic Law of the Environment\(^{32}\), the new Forestry Law,\(^{33}\) and the Law for Titling of Lands Located in National Reserves\(^{34}\)-- may have important impacts on the management of protected areas in Costa Rica, as well as on the eventual implementation of MINAE's protected areas JI proposal, the PAP. These laws, and in particular their potential impacts on land tenure issues within protected areas, will be discussed in more detail in the discussion of the PAP, below.

As with the forestry sector, biodiversity conservation efforts in Costa Rica must adapt to changing conditions. Perhaps most importantly, restrictions on public expenditures have meant that the hiring and maintenance of personnel by the state to manage protected areas has been strictly curtailed, and public resources for land purchases, equipment, and other expenditures are likewise very limited. These problems have been common for those agencies in charge of forestry and wildlife activities, too. Costa Rica has already gone far towards meeting the challenges posed by these circumstances. For well over a decade the government of Costa Rica has worked closely with non-governmental organizations -- most notably the National Parks Foundation -- to harness private resources to assist in the purchasing of lands for inclusion in the National System of Conservation Areas and in providing management for them. Costa Rican conservationists in both the public and private sector have been highly creative in developing new mechanisms to provide resources for conservation, including leading the world in undertaking debt-for-nature swaps, pioneering highly organized efforts to catalogue and discover economic uses for biodiversity, and promoting conservation by private landowners through education, incentives, and legal reform. MINAE is presently exploring the possibility of granting management concessions for selected protected areas to qualified private conservation organizations. The government's promotion and development of JI highlights the possibilities that exist for alternatives to the traditional public funding sources for conservation efforts.

3. The GRUAS Commission

To provide guidance for forestry and conservation efforts, MINAE convened the GRUAS Commission. GRUAS was a multi-institutional and inter-disciplinary commission
created to provide orientation in two areas: first, to promote sustainable forestry and conservation efforts on private lands; and second, to identify priorities for land purchases to assist in the consolidation of SINAC. Using maximization of conservation of biodiversity as its major criteria, GRUAS produced maps identifying lands to be purchased and placed under protection, as well as lands which, remaining under private ownership, should have priority in receiving incentives for conservation or reforestation. The GRUAS Commission also looked closely at the land tenure situation within protected areas. The commission was especially noteworthy because it was broadly participatory. For example, workshops were held including over one-hundred people from both public and private institutions working in conservation. As a result of this work, OCIC has adopted the GRUAS maps and studies as inputs for the PAP. Such an open and participatory approach should be an integral component of any JI regime.

D. Costa Rica’s JI Program

Costa Rica has gone far beyond any developing country in its attention to JI. Its activities have included the creation and funding of a specialized office to promote and develop JI both in Costa Rica and in international discussions, acting as host for a larger number of private JI projects than any other developing country, and developing the first comprehensive, nation-wide forestry projects to use JI funding to further its sustainable development goals. Costa Rica promoted the rapid implementation of JI, in contrast to many other developing countries, and fully embraced the pilot phase. This small country has become a laboratory for testing the viability of JI in the field, and its experiences in developing JI projects can inform the design and implementation of future JI regimes in other countries.

The following discussion describes the organization and activities of institutions working in JI projects in Costa Rica, the original pilot JI forest projects developed primarily by private actors, and the evolution of the framework for the nation-wide projects.

1. The Creation of the Costa Rican Office for Joint Implementation (OCIC).

OCIC was officially established in September, 1995, by an agreement between MINAE and three private organizations, and by presidential decree in March 1996. The creation of OCIC reflected the status of JI as a priority within the ambitious sustainable development program of the Figueres administration. OCIC is responsible for evaluating AJI projects proposed to be undertaken in Costa Rica and for seeking their approval by the Secretariat of the UNFCCC. The decree establishes that projects not meeting criteria set forth by OCIC will not be accepted by the Costa Rican government.

The decree creating OCIC established ambitious, broad and far-reaching functions for the office. These functions include:

- "definition of national objectives and goals for the natural resources, energy, transportation and climate change sectors, in regard to joint implementation"
- "definition of national policies, guidelines and procedures for the preparation, evaluation, approval and monitoring of JI projects"

- "evaluation and recommendation of approval of projects meeting defined guidelines before MINAE"
- "to analyze, identify and promote, in the public and private sectors, the formulation and execution of JI projects"
- "to establish mechanisms to facilitate the marketing of joint implementation projects at the international level"
- "to coordinate actions with the different institutions and organizations realizing activities in joint implementation, both public and private, national and international,"
to “approve methodologies and mechanisms for the monitoring of [JI] projects to permit the verification of reductions in the levels of emissions and the capture of greenhouse gases.”

This decree also established a body comprised of three non-governmental organizations to provide technical and operational support for OCIC. This body, designated the “Non-Governmental Specialized Technical Sector,” was comprised of the Foundation for the Development of the Central Volcanic Range (FUNDECOR), the Costa Rican Coalition of Development Initiatives (CINDE), and the Foundation for Export Development (FUNDEX). At this time, FUNDEX is not participating in this effort and the Costa Rican Association for Production of Electricity (ACOPE) has joined this Technical Sector. The decree defines the roles for the three organizations as follows:

- FUNDECOR is responsible for assisting in the development of forest resource inventories and in developing “estimates of storage and fixation rates of biomass and its equivalent in carbon.”
- CINDE is responsible for assisting in the definition of international marketing strategies for JI projects as well as international promotion to attract investment in approved JI projects.
- OCIC itself is divided into three units: the General Coordinator, Administration, and the Technical Consultative Unit.

At the same time that OCIC was formally created, a second decree created the Specific National Fund for the Conservation and Development of Greenhouse Gas Sinks and Depositories. According to the decree, moneys deposited into this Fund will be used for two purposes: first, to undertake small to medium scale forestry and reforestation projects throughout the country, and second, to purchase private in holdings in National Parks and Biological Reserves (these goals have since evolved into the PFP and the PAP proposal). The fund is to be administered by OCIC. The decree specifies that moneys received by the Fund be distributed in the following manner: for those paid to receive credits for “the authorization of forestry incentives or for the compensation of environmental services of forests and forestry plantations,” the funds will be deposited in, and managed by, the National Fund for Forestry Financing (Fondo Nacional de Financiamiento Forestal - FONAFIFO). Funds destined for land purchases would be invested in a permanent program for this purpose. The decree also calls for the creation of an international economic mechanism for trading carbon credits, or “Certifiable Tradeable Offsets.”

OCIC is unusual for a governmental office in Costa Rica in that it incorporates private sector and NGOs into the basic structure of the organization and assigns them specific, essential tasks. This type of structure is known as a joint venture because it involves both public and private sectors. This circumstance reflects not only the changing role of governmental agencies in the face of tight public budgets, but also the increasing importance of NGOs and the private sector. Over the past decade, NGOs have worked closely with past and present administrations in the implementation of environmental policies. They are particularly active in the establishment and administration of protected areas, as well as in the growing area of private conservation, biodiversity prospecting and policy making and have participated prominently in forestry policy debates, developing sustainable forestry projects in the field, all areas of particular importance to the emerging Costa Rican JI program. The potential of NGOs and private sector to contribute to the Costa Rican JI program is strengthened by their independence from public budget constraints as well as independence from the cycles of changing governments and their priorities. This growing prominence of NGOs is increasingly apparent not only in the environmental field, but in all areas of public life. OCIC and Costa Rica’s JI program highlight public-private cooperation and adaptability in the face of changing economic forces and political circumstances.
The evolving Costa Rican JI program also involves the participation of other public institutions besides OCIC, MINAE, SINAC and FONAFIFO. This is particularly true of energy projects, that involve the participation and active cooperation of other parties, instead of SINAC, such as the Costa Rican Institute of Electricity (IC), the National Power and Light Company (CNFL), the Costa Rican Institute of Water and Sewerage (AYA) and local municipalities. At its present stage of implementation, the FFP has included the CNFL as signatory and co-implementor of the agreement for a watershed reforestation and hydroelectric plant upgrade pilot JI project signed by MINAE with the Government of Norway and a consortium of private Norwegian firms. While difficulties in inter-institutional cooperation between public agencies in Costa Rica have been a problem in the past in other areas -- and this should be closely watched in the development of Costa Rica’s JI program -- there have been significant efforts to improve and streamline such cooperation, particularly in the most relevant area of watershed management.

Since the formation of OCIC, the roles of participating institutions have evolved, and other organizations have also become prominent participants. For example, the Earth Council, established in Costa Rica after the 1992 United Nations Earth Summit in Rio de Janeiro in order to monitor progress on the agreements signed at the summit, is an important participant in the PAP, assigned to assist OCIC in marketing projects and identifying and approaching potential investors and contributing the seed capital. While the decree which established OCIC stated that FUNDECOR would be primarily responsible for establishing baselines for determining levels of carbon fixation in JI projects, in practice this role has also been assumed by private project developers. Another example is the participation of the Swiss firm Société Générale de Surveillance and of Centre Financial Products in the implementation of the PAP.

2. Private JI Forest Initiatives: Phase 1

At this time, more than three years have passed since developing a JI program became one of the priorities of the Figueres administration. To date, the program has passed through two phases and is entering a third.

As noted, OCIC refers to the early pilot JI initiatives developed primarily by private interests in Costa Rica as “First Generation” or “First Phase” JI forest projects. At this time, the promotion of new small private initiatives is not a high priority for OCIC. However, OCIC has worked closely with private project developers and recognized the value of these experiences in the development of its programs. To date, two of the original pilot JI forest projects -- CARFIX and BIODIVERSIFIX -- have been integrated into OCIC’s nationwide “umbrella” projects, the FFP and the PAP. Of the other two First Generation pilot JI forest projects, ECOLAND has been substantially completed while KLIMASKIFIX has received some funds to begin implementation as originally proposed.

To begin discussion of the individual “First Phase” forestry projects, it is useful to point out their most important shared characteristics:

- Each were projects with individual, independent objectives, with no direct relationship to each other;
- The Costa Rican government was to have no direct participation in the eventual implementation of the project (once funds were obtained). Its role was limited to review and approval. Once the project was approved by OCIC, the primary responsibility for obtaining funding for implementation fell to the project developer.
- Each project was to be implemented in a specific geographical site or region within the country clearly identified in the proposal.
- The potential source of funding was any specific company from an Annex 1 country.

The importance of these projects was that they provided Costa Rica and the world with hands-
on experience for the pilot phase of JI. In an international crediting system for JI, the legal incentive for Annex I private sector groups to participate in projects. Costa Rican authorities have come to the conclusion that in the absence of such a system, high transaction costs will keep small private organizations from obtaining sufficient funding to fully implement projects once they were approved. For example, of the four original projects, only ECOLAND obtained sufficient funds to be implemented. In addition, given the fact that the major objective of the government during the pilot phase was to slow deforestation and promote reforestation, a highly complex, nationwide problem, the government came to the understanding that private, individual AIJ projects could not meet the nation’s goals for JI. Another highly significant factor weighing on governmental authorities was the perception that given the small size of the country, smaller individual projects would be less appealing at the international level than larger projects. Important in this consideration was the thought that Costa Rica would be competing with countries with much larger land mass. For these reasons, Costa Rica’s program evolved to the nationwide “umbrella” projects. The individual projects are examined first.

a. ECOLAND

The Esquinas Carbon Offset Land Purchase Initiative (ECOLAND), was an early pilot JI forest initiative to purchase private lands within the border of Piedras Blancas National Park in southwestern Costa Rica, within the Osa Conservation Area (ACOSA). The project proposed to purchase between 2,000 to 3,200 hectares of the 12,500 hectares in the Piedras Blancas National Park. Before the project began, almost all lands in the park were privately owned. The climate change benefits from the project derived from the fact that these lands were at risk of being logged, releasing the CO₂ contained in the forest into the environment. In addition, the Piedras Blancas National Park is extremely important biologically, an integral part of the most important humid forest on the Pacific side of Central America and part of a proposed trans-isthmus biological corridor. The project proposed that lands be purchased by a Costa Rican NGO and later transferred to the Costa Rican government, represented by MINAE.

Although the lands acquired through the project would ultimately be managed publicly within the legal framework which applies to National Parks, the preparation of the ECOLAND proposal, the raising of funding, and the purchase of lands were all carried out privately. The ECOLAND project was undertaken by a consortium of organizations consisting of Tresler and Associates, Inc., a U.S. based consulting firm specializing in assisting companies in developing strategies for reduction or mitigation of greenhouse gas emissions; Tenaska Washington Partners II, L.A., a U.S. utility company; The National Fish and Wildlife Foundation of Washington, D.C.; the Association for the Conservation and Management of Tropical Forests (COMBOS), a Costa Rican NGO specializing in private conservation initiatives; the OSA Conservation Area (ACOSA), the governmental organization responsible for the eventual management of the area; and Rainforests of the Austrians, an NGO with property in the area.

The ECOLAND project raised $450,000 from Tenaska, and an additional $250,000 from the NFWF. This funding was used by COMBOS to purchase 2,200 hectares with the limits of the national park. To date, the lands purchased by the project have yet to be passed to the ownership of the state, although this transfer is expected to occur in the near future. According to project developers, the transfer has yet to be approved by the relevant governmental authorities.

The ECOLAND project, according to its developers, was “designed to protect the carbon storage and sequestration capacity of Piedras Blancas National Park.” As such, the project is based on the assumption that lands within the boundaries of the declared park not purchased...
and passed to governmental control will be deforested. In the words of the project proposal, "there is no doubt that all primary forest not under a viable protective regime will be lost in the foreseeable future." Therefore, the carbon benefits of the ECOLAND are based primarily on preventing the release of carbon stored in the mature forests of the Piedras Blancas National Park.

The accuracy of this assumption is difficult to evaluate. Deforestation rates in Costa Rica outside of strictly protected management areas such as National Parks and Biological Reserves have been high, and thus, historically, there is much support for assuming that the forest at Piedras Blancas was in danger. Adding to this threat is the fact that this forest contains much valuable timber. Experience has shown that National Parks and Biological Reserves have been the most successful publicly managed protected areas in the prevention of deforestation. Among the reasons for this have been a requirement that lands in such areas be purchased by the state, as well as very clear prohibitions on extractive activities. Placing these lands in the hands of the state for protection is also the most politically practical solution, avoiding potential problems arising from purchasing large areas of private land with foreign funds and placing them beyond the use of local residents without governmental participation.

However, developments in Costa Rica have shown that approaches to conservation are changing, and that viable and cheaper alternatives to the purchase of lands for protection in National Parks and Biological Reserves may now exist. Among the most interesting developments in this area has been the increase in the number of private nature reserves established throughout the country. Attitudes towards forested lands are changing. In contrast with the situation a decade ago, forested lands today attract higher prices than deforested land. Faced with these facts, new incentives in return for establishing binding limits on the development of their land (this possibility is addressed by MINAE's PFP, discussed below). In Piedras Blancas, for example, some owners of forested lands along the coast are included within the borders of the park. These land owners were reportedly interested in placing binding conservation easements on their properties rather than face the possibility of being forced to sell their lands. On the other hand, it is important to remember that private conservation is only voluntary, and present or future owners might not be willing to protect forests.

Implementation of ECOLAND has raised issues that need to be addressed in any similar proposal in the future. First, delays in passing ownership of these lands to the state as well as a lack of sufficient funds for management have resulted in lands not receiving adequate protection. In spite of its legal obligation to provide protection, MINAE does not have the resources to provide a sufficient amount of personnel to cover work in the area. Secondly, some lands purchased by ECOLAND are located on peripheral areas of the park, and persons holding lands in more central areas pass through lands purchased by the project, causing managerial difficulties. Furthermore, other public entities are not providing public services to persons living on private in holdings in the park. This causes social and economic problems as well as resentment of the park. Finally, because MINAE cannot enforce national park restrictions on private in holdings, persons on these lands continue to obtain permits to harvest trees.

While some of the problems arising in the implementation of ECOLAND were difficult to foresee, others could have been dealt with in the preparation of the proposal. Most obviously, additional funds should have been included for providing management and control for lands after their purchase. It is important to point out that this lesson has been well learned, and more recent project proposals include this precaution.
As noted, the implementation of the ECOLAND project has caused some discontent among local residents of the area, mostly among those who did not sell their lands and face certain hardships caused by the inclusion of their lands in a national park. These inconveniences are common whenever these types of land use restrictions are declared, and should not be used as a criticism of JI. The area was declared to be a national park, thus committing the government to the eventual purchase of these lands, before AJI funding was a realistic possibility. As is the case in most remote areas such as this one, the residents of the area were generally eager to sell their lands and relocate to more convenient sites.

Despite a few problems, ECOLAND has shown some highly positive results. The project purchased lands in one of the most biologically important protected areas in the country. In addition, AJI funding was supplemented by contributions from more traditional sources of conservation funding to show that this mechanism can be used creatively to leverage scarce funding for conservation.

The ECOLAND proposal left open the possibility that a future phase or phases of the project could be implemented to purchase additional lands in Piedras Blancas National Park. However, at present it seems more likely that any future AJI or JI investment for the purchase of lands in this area would take place within the framework of MINAE’s PAP. The PAP was not in existence at the time that the original ECOLAND proposal was written, but is designed precisely to undertake these types of operations.

b. KLINKIFIX

This project proposes to test pilot commercial tree plantations on privately owned farms in Costa Rica using the species commonly known as the klinki pine (Araucaria hunsteinii). According to project developers, the klinki pine is a large species suitable for the production of high-quality wood. This pine is an exotic species in Costa Rica, and thus reforestation with this species appears to present few direct biodiversity benefits. However, availability of trees planted for timber lowers pressure on natural forests and, consequently, natural forests face lower risks. The project proposes to convert between 1,200 to 2,400 ha. of privately owned pasture lands to tree plantations.

The principal project site is the Turrialba Valley in central Costa Rica, although other areas of the country are also suitable for the klinki pine. The project would be managed and monitored by a joint staff including representatives of the Newton Treviso Corp. and the locally based County Agricultural Center of Turrialba (CACTU). This project would provide landowners with technical assistance and financial support to develop klinki tree plantations on land formally used to raise cattle.

Although this was among the earliest AJI forest projects to be approved by both OCIC and USJII, KLINKIFIX has only recently received partial funding to begin planting. The Klinki project has some 100,000 trees on hand, of which 30,000 must be planted this year to ensure their survival. In the past months, KLINKIFIX has received only some of the funding needed for investment in its reforestation project. The funding strategy followed by the project is to convince households and schools in the United States to offset their greenhouse emissions through investing in the project.

Since the Klinki pine needs 30 to 40 years to reach maturity, the promoters of the project recommend that the reforestation be mixed with other, faster growing species, or with other crops or cattle. The Klinki project signs a contract with the beneficiary, by which the CACTU agrees to provide technical assistance, to provide the necessary klinki trees, and to give the landowner the equivalent of $500 per hectare or for every thousand trees, distributed in the following manner: 40% the first year, 30% the second, 15% the fourth year, and 5% the fifth. The beneficiary
in turn signs a guarantee for an amount equal to that received and for a term of 30 years. In case the landowner sells his property or the part planted with Klinki, he or she must inform CACTU in writing and return the amount of funds received, except in the case where the new owner agrees in writing to continue with the project. The contract signed with the beneficiary cedes the right to carbon fixed by the trees to Reforest the Tropics, Inc., for a term of no less than 40 years.

At present, KLKNIKFIX is being undertaken as a private project, independent of MINAE’s PFP, although as will be shown, the project has many elements in common with the PFP. One stumbling block for participation in the governmental incentives program under the PFP is that MINAE has not listed the Klinki pine as a species eligible to receive governmental reforestation incentives. In any case, KLKNIKFIX’s limited geographical scope, relatively small scale, and local administration makes it appropriate to be carried out on a private basis, as OCIC itself recognizes.

The social, political and economic impacts of the project are non-controversial. Being in effect a program to assist small to medium landowners in diversifying production on their lands as well as introducing a long-term earning potential, including distribution of both financial incentives as well as technical assistance and trees, KLKNIKFIX should only have a beneficial impact. As the project does not contemplate the relocation of landholders, and might provide some degree of incentive for small farmers to stay on their lands, the project should have a positive impact on the local community.

Being among the earliest projects designed, KLKNIKFIX included no formal provisions to protect investors, such as insurance agreements, independent verification or certification. More recent JI projects in Costa Rica, such as the PAP, have included this type of protection. The scheme of payments proposed and the education of landowners about the economic benefits of planting the klinki pine are the most important components of ensuring the project’s future implementation and protecting investors. In addition, OCIC would be able certify the project’s credits and grant CTOs.

On the other hand, a matrix was developed and described in the proposal which addresses the issue of expected carbon benefits. It is based on scientific research on the klinki pine carried out for many years by CATIE, a well known graduate school for Central America and the Caribbean in the field of forestry and land based sciences, located in Turrialba. A scientific study of that matrix is beyond the scope of this report. However, CATIE has established a strong reputation on forestry issues, and is well familiar with the klinki, having originally brought the species to Latin America.

c. BIODIVERSIFIX

BIODIVERSIFIX is among the first pilot JI forest projects designed in Costa Rica. Located in Guanacaste province in the northwest corner of the country, BIODIVERSIFIX proposes to use AIJ funding to regenerate and protect both dry and wet forest in the Guanacaste Conservation Area (ACG). The project’s main objective is to regenerate tropical forest and allow for sustainable use of its products and services without damaging its biodiversity.45 The ACG protects one of the last few remnants of dry tropical forest in Central America, and its biological importance has made it an international center for studying the ecology of this type of forest.

The ACG is comprised of approximately 120,000 hectares, and includes both dry forest closer to the coast and more humid forests farther inland. As a result, the BIODIVERSIFIX project has two components: DRYFIX and WETFIX. DRYFIX proposes to restore approximately 45,000 ha. of abandoned pastures, fields and very early successional stages to dry forest. Likewise, WETFIX proposes to restore approximately 13,500 ha. of abandoned fields to wet
forest. The project proposes to purchase private lands located in the national parks of the conservation area in order to promote ecotourism, biodiversity prospecting and limited sustainable forestry practices. BIODIVERSIFIX has not received funding for its implementation and more recently it has been officially included under the PAP.

This project proposal was developed by the personnel of the ACG, including Dr. Daniel Janzen, a noted biologist who has worked in the area for over 20 years. The ACG has developed a comprehensive approach to increase the sustainability of the ACG, and JI is seen simply as another source of funding for the continuation of ongoing work. In an interview, Dr. Janzen stressed that the sustainability of the project is based on the strength of the “biodiversity industry” created by activities in the conservation area. As Dr. Janzen pointed out, the creation of jobs providing sufficient income for locals, as well as benefits obtained from biodiversity prospecting and tourism, represent the best protection that investors could obtain for their participation in the project.

Purchasing lands in the ACG will displace few local people, mainly because the area where the park is located and its surrounding areas has been largely vacated by locals. A recession caused by low beef prices, resulting in a general willingness to sell lands to the ACG, led to the abandoning of cattle ranches in the area. Just like other parks in the world, the ACG faced local opposition to some of its policies, such as land use restrictions or control over hunting, when it began to implement its work in the area about 20 years ago. However, in recent years this opposition has been generally replaced by strong support for the ACG and its plans for the future.

BIODIVERSIFIX included in its budget solid financial support to carry out monitoring and enforcement activities through official authorities under SINAC. Regular park manage-

ment costs were also included. Provisions for carbon credits were not defined in the proposal as they to have been when funding sources were identified.

As was stated before, BIODIVERSIFIX has now been included under the PAP. For this reason, its future implementation is linked to the future of that project.

d. CARFIX

This project proposes “to stabilize the existing natural forest, and create additional forest cover” in the Central Volcanic Mountain Range Conservation Area (ACCVC). Most of this area is covered with tall, dense, biologically rich evergreen forest. The activities to be implemented include natural forest regeneration (10,670 ha.), sustainable management of natural forests (20,502 ha.) and tree plantations (5,533 ha.), with the goal of conserving the existing carbon sinks and increase carbon sequestration in the conservation area. The project also proposes to undertake some activities needed to purchase lands located in the national parks of the conservation area.

The project, to be implemented by FUNDECOR, a Costa Rican NGO, and the governmental office of the ACCVC, had two main components: to provide technical assistance to local private landowners to engage them in sustainable forestry practices and to provide economic incentives for local landowners while engaged in medium-to-long term forestry practices. CARFIX has been seen as an additional source of funding for the activities that FUNDECOR had already planned and has been implementing for several years for the protection and sustainable management of the conservation area.

Even though both MINAE and USIJI approved the CARFIX proposal, the project did not receive funds to be implemented as a private project. However, it has obtained funding
through the PFP, as it has been incorporated in that larger proposal. As FUNDECOR is one of the NGOs officially represented in OCIC, CARFIX’s model has been the basis for the design of the national level projects known as the Umbrella Projects.

It is important to stress that scientific research to understand the behavior of both native and non-indigenous tree plantations has been rare in Central America. Only recently have these types of research studies been undertaken. FUNDECOR, since its creation in the early 90’s, has carried out scientific forestry research in the ACCVC to address the shortage of information and thereby support its work. Even though independent verification of the project’s baseline was not considered in the proposal, estimates used for the determination of the baseline is strongly supported by FUNDECOR’s scientific work. Likewise, past and expected deforestation rates used in determination of the projects’ baseline were calculated based on field work and Landsat satellite images from previous years.

Purchasing lands in the parks of the ACCVC with payments for environmental services to private landowners increases the protection of the parks and at the same time increases the benefits for environmental services derived from the ACCVC. For example, pasture lands in the ACCVC are no longer profitable for cattle grazing. Therefore, activities related to forest use and tree plantations are more profitable and increase the economic incentive for engaging in these activities. For this reason, local landowners become increasingly interested in participating in the project, and it has become an additional source of income and jobs for the region. Furthermore, tourism in the region creates further incentives for forest protection and sustainable use of the resources in the project area.

FUNDECOR is working closely with SINAC, and provides strong financial support for SINAC’s activities in the ACCVC. As proposed by the CARFIX project, monitoring and enforcement activities in the area are carried out jointly by SINAC and FUNDECOR. Satellite images and data have already been used by FUNDECOR to assess forest cover in the ACCVC, and will be used to monitor the implementation of carbon sequestration activities. In order to avoid the perverse incentive for landowners to clear cut natural forests and get credit for the planting trees under JI, FUNDECOR will give payments only to landowners whose land was not covered by natural forest in 1990. Through aerial photos and satellite images FUNDECOR can verify which landowners qualify to obtain payments.

Another practice that FUNDECOR is utilizing to increase the long term success of the activities proposed in CARFIX is to purchase timber in advance, years before the trees are harvested. Through this mechanism, FUNDECOR pays landowners a percentage of the predicted market value of the timber that will be eventually harvested. With this source of income, landowners will have an annual flow of cash to cover short term needs, thus making it easier for them to participate in the project until mature trees can be harvested and the best market values can be obtained for them.

As was stated earlier, CARFIX became the model for the PFP. At this time, CARFIX has been included in both of the “Umbrella” proposals, and for this reason many of the issues related to CARFIX can be best explained within the framework of those larger proposals.


OCIC and MINAE have developed two new major initiatives to develop, market and implement nation-wide AJI land use and carbon sequestration projects, which it describes as the second and third generations of AJI projects in Costa Rica, and has touted these initiatives as potential models for other countries. These proposals were dubbed the “umbrella proposals” because they sought to provide an over-arching,
nation-wide framework under which all AIJ forest projects could be implemented.

The first of these is the establishment of a program of incentives to stimulate reforestation, forest management and the conservation of forests on private lands. The second is a proposal to use joint implementation funding to consolidate the nation’s protected natural areas system, based on the recommendations of the GRUAS commission and the administrations of local conservation areas. This proposal follows a “commodity” approach, proposing to sell CTOs as commodities in order to obtain funding. Both of these projects will be financed in large part through the issuance of “Certified Tradeable Offsets” (CTOs) to AIJ or JI investors. While OCIC considers the umbrella projects the preferred way to undertake AIJ or JI projects, it remains open to reviewing privately developed and implemented projects as well.48

These second and third phase projects share the following characteristics:

- Given their size, these projects reduce transaction costs when compared with smaller individual projects;
- These project proposals and the sale of CTOs are not tied to specific, identified project sites or specific parcels of land identified beforehand. However, during the implementation of the project, funds received will be used for specific activities on specified lands.
- These projects have a larger social impact because even small land owners throughout the country can participate in the project.

a. Certified Tradeable Offsets (CTOs)

OCIC defines Certified Tradeable Offsets (CTOs) as a specific number of units of greenhouse gas emissions reduced or sequestered in which all phases of the JI project in the host country have already been completed, and in which the “without project baseline” has already been certified by both the home and host country governments. The home country verification would certify that the offsets are of a high enough quality to allow them to count against national and firm-level greenhouse gas commitments, if such crediting is permitted under the Framework Convention on Climate Change.49 Though this report is concerned mainly with forest projects, CTOs can be applied to energy projects as well.

OCIC stresses that CTOs are verifiable by the “home” government. OCIC points out that the condition of a forest preservation project, for example, can be verified through the use of satellite images and field work.50 The same would hold true for plantation-type reforestation projects.

As OCIC points out, CTOs offer significant advantages to investors, perhaps the greatest of which is convenience. Details of project development and proposal approval would not need to involve the investor, who would simply purchase the CTOs. Another advantage is security. For example, CTOs from the PAP will be certified by SGS, and CTOs from the PPF would only be issued where “all phases of the JI project in the host country have already been completed.”51

OCIC had set a price for CTOs from the PPF of $10 per ton of carbon in their negotiation with the Norwegians.52 The first portion of CTOs from the PAP will be offered for sale by Centre Financial Products in February, 1998, at an estimated price of $20 per ton of carbon.

b. Phase 1: The Private Forestry Project (PFP)

The Private Forestry Project (PFP) is an initiative that uses payments for environmental services described in the Forestry Law to promote tree plantations, conservation and sustainable management of natural forest in priority buffer areas of the National System of Conservation
Areas identified by the GRUAS Commission. These activities are supported by AJI funding of the Norwegian government, and revenue collected from local gas taxes in the funding country. This project and its framework are clearly set forth in existing forestry legislation and in a project approved by OCIC and Norway called “reforestation and forest conservation AJI pilot project”. Through this specific project, funds from the Government and private sector of Norway will become the first international source of funding for the Costa Rican program called Forestry Environmental Services Payment (FESP).

Under this mechanism private landowners in Costa Rica would receive FESPs and the AJI investor would receive an equivalent quantity of CTOs according to its investment. As stated, this project gained the initial framework from what is known as the Private Forestry Proposal (PFP).

Funding received from AJI or JI investors through the purchase of CTOs is integrated into the control of FONAFIFO, funds are transferred to landowners as payments for environmental services through means of contracts.

The Forestry Environmental Services Payments created by the Forestry Law and its regulations grants approximately US$505 per hectare to tree plantations (through a certificate called CAF and another one called CAFA), US$337 per hectare to forest management practices (through a certificate called CAFMA) and US$210 per hectare to forest conservation (through a certificate called CCB). The government gives these payments to private landowners over a period of 5 years. In the first year the payment is for 50% of the total, in the second year 20%, then 15%, 10% and in the fifth year 5%. For 1997 the program states that a maximum of 14,000 hectares of tree plantations, 7,000 hectares of commercial forest and 50,000 of natural forest for conservation purposes would receive the payment. Approximately US$7.5 million from Costa Rica’s tax on gasoline will be used to make these payments. A legally binding contract is signed between the government and the landowners when making these payments. All these contracts had to be signed before the end of this year and they will have to be inscribed at the Public Registry before the second payment is made. For 1997 all recipients of these payments have been selected. Applications submitted in 1997 could obtain these payments next year.
In addition to these payments, there are other incentives in the new Forestry Law such as special legal protection against squatters and some tax exemptions. It is important to point out that those payments mentioned in the previous paragraph are given only over a period of five years and for this reason the government is purchasing just those credits accruing over this same period of time. If the government desires to purchase credits available after the initial period of five years, it will have to pay for them. A description of those payments and other incentives is given below.

**FESP for Tree Plantations**

Landowners involved in tree plantations can apply to obtain payments for the environmental services that their tree plantations provide. These payments for environmental services are:

- **CAF - Forestry Investment Certificates** (Certificado de Abono Forestal) are payment for environmental services. They are given to landowners who have a management plan for planting trees in an area of at least 1 hectare. For 1997 this payment was €120,000 per hectare (approximately US$505), given to landowners over a period of five years.

- **CAFA - In Advance Forestry Investment Certificate** (Certificado de Abono Forestal por Adelantado) is given as payment for environmental services given by tree plantation projects covering an area of 1 to 10 hectares per landowner. For 1997 this payment was €120,000 per hectare (approximately US$505). The difference between the CAFA and the CAF is that the CAFA is for small landowners in need of funds for their own activities and short term needs.

To receive either a CAFA or a CAF, landowners are required to sign a legally binding contract inscribed in the Public Property Registry. Registration ensures that others know that there is a land use restriction on that specific piece of land. At this time, the government is signing these contracts with private landowners and notaries have been contracted to inscribe them in the Registry. When receiving these incentives, landowners are required to grant or concede the carbon credits from their property to the government. For 1997 all recipients of these payments have been already selected. Applications submitted in 1997 could obtain these payments next year.

**FESP for Forest Management (CAFMA)**

The new Forestry Law allows those involved in sustainable forestry practices to apply for and receive payments called Natural Forest Management Certificates (CAFMA) for the environmental services provided by their forests. To receive CAFMAs, owners must use their forest according to an approved management plan. CAFMAs are approved for landowners with a minimum of 2 hectares and a maximum of 300 hectares per property or adjacent properties of the same owner. For 1997 this payment was €50.225 per hectare (approximately US$337).

**FESP for Forest Conservation and Restoration of Degraded Lands Suitable for Forest (CCB)**

Those preserving natural forests that have not been used at least for two years and those landowners restoring degraded lands can obtain payments for environmental services called Forest Protection Certificates (CCB).

CCBs are payments for environmental services given to landowners preserving their natural forests and for those preserving degraded lands who own an area between 2 and 300 hectares. For 1997 this payment is €50,000 per hectare (approximately $210).

Landowners receiving FESP must sign contracts with MINAE requiring the landowners to commit to conservation or reforestation activities for a period of 15 years, specifying that all carbon sequestration credits are to accrue to MINAE. The contracts specify that if the land
owners sells his or her land the payments received must be returned to the government unless the new landowner agrees to accept the terms of the contract.53 The contracts are filed in the land registry. These contracts pose a potential problem in that the contract does not bind subsequent landowners to accept the terms of the contract in the case that a property is sold, and difficulties might arise in collecting incentives already paid out. In addition, given the fact that these contracts are new, FONAFIFO has also reportedly faced some problems in having these contracts accepted for inscription in the National Property Registry. A useful alternative could be the signing of contracts which are binding on future landholders such as easements.

FONAFIFO is governed by a Board of Directors consisting of two representatives of the Private Sector, one a representative of the organizations representing small and medium land owners, and the other a representative of the forest industry; and three representatives of the public sector, one from MINAE, a second from the Ministry of Agriculture and a third from the National Banking System. The Board of Directors have broad powers to manage the fund.

A brief description of the Private Forestry Project which appeared in “Joint Implementation Quarterly” describes the role of FONAFIFO in the Private Forestry Project as follows: “FONAFIFO acts more or less as the project developer ... that receives the JI investments for reforestation and forest management projects executed by medium and small landholders throughout Costa Rica. As such, FONAFIFO functions as the administrator and financing agent in the FFP.”54 While OCIC stresses that “the FPF would increase the accountability of the existing infrastructure by opening it to third party verification,”55 no mechanism for such third party verification appears in the relevant legislation. As it stands, however, control over the contracts would rest primarily with MINAE, as well as with the private forester responsible for the preparation and operation of the respective management plans.

Options for improving control over enforcement of the contracts would include requiring certification of compliance by means of third party verificator (i.e. NGOs experienced in forestry certification, etc.). However, the fact that the project is directed at small and medium sized landholders might make these potential solutions financially impractical unless funding is provided through the project for this function. While these potential options are not mentioned in the legal framework, OCIC has said that MINAE could consider subcontracting private sector organizations to assist in control activities.56

The PFP establishes carbon baselines based on sequestration for reforestation activities and prevention of release of stored carbon and sequestration for conservation activities and regeneration of natural forest. As implied, the accuracy of carbon baselines established by the PFP would rely heavily on verification procedures adopted by the project.

There is a much greater demand in Costa Rica for incentives under the PFP than available funding. This circumstance implies that there are a great number of landowners willing to reforest or conserve forests on their lands, provided that adequate incentives are available.

Indeed, private conservation is already a rapidly growing land use, with over 200 private landowners referring to their properties as private conservation reserves. Although the expansion of eco-tourism in Costa Rica over the past decade has made a number of such reserves presently viable as economic enterprises, conversations with landowners indicate that much land is being placed or held in conservation in hopes of eventually receiving economic incentives, developing economic uses for the land while conserving the forest, or simply out of a desire to conserve natural resources. Reported declines in the profitability of alternative land uses such as cattle raising also plays a role in the high demand for assistance in conservation and reforestation. Reforestation
can be a highly viable economic land use for many areas of Costa Rica, but without cash incentives this is a long-term investment beyond the reach of many small and medium-sized landowners.

The relatively high demand for incentives and the fact that some landowners appear to be voluntarily protecting their lands will raise the issue of whether the FTP is additional -- that is, whether conservation and reforestation, and thus carbon sequestration and storage, would occur without AIJ or JI funding. For example, attitudes of landowners in favor of forest conservation and reforestation do appear to be changing. However, such attitudes are highly difficult to quantify. It is also extremely difficult to determine to what extent these changes are dependent on the prospect of AIJ or JI funding to support these activities, or on the international prices of other products such as beef and grain. The additionality question regarding the FTP is perhaps best illustrated in the context of a fortunate confluence where local economic conditions, global climate policies providing needed funding for programs in developing countries, and a responsive local government program promote environmentally beneficial activities.

As in the case of the KLINKIFIX project, the economic and social impacts of the FTP are non-controversial. The program exists to assist small to medium size landowners in diversifying the uses of their lands, and to make these uses more compatible with the natural capacity of the land. The FTP would not result in involuntary displacement of landowners, although the program, if fully operational, would probably stimulate the market and raise prices for private forested lands. The FTP would also result in making forestry activities more sustainable and profitable.

This project has received the approval from the governments of Norway and Costa Rica and has been reported to the UNFCCC Secretariat. At this time, the project is implemented and partial funding for it has already been received by Costa Rica. Accordingly, the Norwegians have received CTOs representing 200,000 metric tons of carbon, for their investment.

c. Phase 3: The Protected Areas Project (PAP)

The PAP is a proposal to strengthen the National System of Conservation Areas (SINAC) by using AIJ or JI funding obtained through the sale of CTOs to purchase lands and settle land claims in National Parks and Biological Reserves. Land tenure would be consolidated in the hands of the government and funding would accrue to support conservation efforts and programs in these protected areas. The PAP project will follow the recommendations of the GRUAS Commission to place under strict protection those lands necessary to protect an estimated 90% of Costa Rica’s biodiversity. The project proposal claims both carbon sequestration offsets for regeneration of natural forest in these areas, as well as offsets for preventing deforestation of threatened areas within these lands. BIODIVERSIFIX, an early AIJ forest project to purchase lands within the Guanacaste Conservation Area, has been integrated into the PAP. The national park component of CARFIX has also been integrated into the PAP.

This project will be implemented throughout the country given the fact that most protected areas in Costa Rica are subject to this project. “The intention of this project is to finance all the necessary activities to transfer to MINAE a total of 555,052 ha. corresponding to the lands in the national parks and those biological reserves that have been declared” as such but that have not been registered in the National Property Registry as part of the Forest Patrimony of the State. Since 24,554 ha in those protected areas are under other uses they have been excluded and the area subject to claim is 530,498 ha."
In order to understand the PAP, a familiarity with the legal issues affecting land tenure in the areas affected by the proposal is essential. Rural lands in Costa Rica have been occupied and claimed in a haphazard manner, with little systematic organization and partition of the national territory. Claims on lands have been established through a variety of forms, including active settlement and farming of lands, land grants by the state, distribution through agrarian reform programs, the claiming of community property rights by indigenous groups, through exploitation of logging or mining claims, or through the buying and selling of these claims. In a typical case, rural settlers will clear land and plant a portion of it with crops or pasture, and under Costa Rican law the possessor of the lands gains property rights after a period of ten years. While this property right can be converted to legal title through a court procedure, often this is not done, and land in such rural areas can be and usually is held under a variety of indicators of legal rights in the land, ranging from legal title to a registered survey, to an informal map, or to statements given by neighbors. In these situations, there is often little precision as to property boundaries and conflicting or overlapping claims often exist. While the Costa Rican government claims title to unoccupied lands as national reserves, in practice there are few lands in Costa Rica that are not affected by private claims.

This sometimes chaotic land tenure situation is typical for most of the areas declared to be National Parks or Biological Reserves in Costa Rica, and the declaration of such an area is the beginning of a long process of identifying and mapping claims, negotiating settlements with owners, and inscribing and passing legal title to the state. While in some protected areas ownership interests are well established, in others much work remains to be done. OCIC’s PAP proposal, in fact, estimates that only 5% of the lands in National Parks and Biological Reserves are titled as such in the name of the government. In a number of protected areas, some lands have been purchased for conservation purposes by an NGO (as in the ECOLAND project), and are simply awaiting transfer to the government. In other cases, lands are legally held by government institutions other than SINAC, and agreements for their transfer must be reached.

In essence, the PAP proposes to use AJ and JI funding to undertake the work necessary to settle legal claims in National Parks and Biological Reserves, to title these lands in the name of MINAE, and to provide protection. In this way these lands would be included as a part of the natural patrimony of the State. While the baseline of the project is based on the carbon sequestration and emissions potential of lands within these areas, much of the actual costs of the project will be determined in the settlement of legal claims to lands. MINAE proposes to use AJ and JI funding through the PAP to settle the clearest and least costly claims first, eventually reaching more difficult and costly situations. Investments in the PAP should thus be made with a clear understanding that some costs of the project may involve addressing legal issues that are complex and often difficult and expensive to resolve. MINAE should ensure that land tenure records for lands within National Parks and Biological Reserves are well organized and accessible to the public.

An advantage of smaller-scale protected areas projects (such as ECOLAND or BIODIVERSIFIX in its original form) that target specific lands is that it is easier to determine and demonstrate the actual costs of acquiring lands than would be the case with a nation-wide proposal such as the PAP. In Guanacaste, for example, where land settlement patterns have tended towards the establishment of large cattle ranches over many years, the land tenure situation is much simpler than in other parts of the country.

In the third phase of Costa Rica’s AJ program, land tenure has been considered to
define priorities related to the selection of lands to be purchased. Those lands where less land tenure problems exist (or are nonexistent) are coming first on the list, leaving those with more problems last. This is not necessarily a bad outcome, however. It seems better that land purchase is allowed to go ahead, even though the most intractable land tenure problems will be left until last. Otherwise, the start of the PAP would be delayed by lengthy court proceedings covering difficult land tenure problems, with climate benefits similarly delayed.

The PAP raises a question regarding additionality -- that is, whether the proposed project would occur without JI -- in that the Organic Law of the Environment requires that private lands in National Parks and Biological Reserves be purchased by the State. The same article of the law provides “private properties affected… by being located in national parks, biological reserves and national wildlife refuges, shall only be included within the State [Protected Area] from the moment that payment or expropriation has legally been made...” Costa Rican conservationists have pointed out that the longstanding presence of private lands within National Parks and Biological Reserves due to lack of funds, despite the existence over many years of legal requirements that they be purchased, amply demonstrates that there is a need for JI funding to accomplish this. There are also some rulings from the Supreme Court requiring the Government to expropriate those lands located in national parks and biological reserves, of course making the correspondent payments to private land owners.

The obligation of the government to purchase those lands derives from a Supreme Court ruling stating that the government has to compensate individuals whose lands are affected by highly restrictive environmental regulations, such as those in national parks and biological reserves, where no economic activity by private landowners is allowed. If the government does not do so the Supreme Court stated that it would be violating private ownership rights stated in Article 45 of the Costa Rican Constitution. This interpretation of the Supreme Court has been included in laws that were passed after that ruling, such as the Law of the Environment and the new Forestry Law.

As a consequence of that legal framework, the Costa Rican government has to purchase large amounts of land within the Conservation Areas to be able to enforce the existing regulations. This is one of the reasons why the conservation areas have a strong interest in purchasing private lands in national parks and biological reserves and why the PAP also proposes this.

As with the PTF, the issue of additionality with regard to the PAP points out some of the difficulties with this concept when applied to concrete projects in developing countries. According to most commentators on this subject, the requirement that these lands be purchased
would signify that the use of JI funds to purchase private lands within National Parks and Biological Reserves would not be additional, and that such a project should therefore not be considered for AIJ or JI funding. For years the government of Costa Rica and national and international conservation organizations have carried on an important struggle in the face of great odds and with few funds to establish a National Parks System that has become a model for developing nations. If the PAP is considered by some people as not additional, this would mean that Costa Rica could not use AIJ or JI funds in order to purchase the private holdings, that have been one of the greatest threats of deforestation of these areas. Other countries also have legal requirements that the state purchase lands in protected areas, and would face this issue in similar proposals to consolidate ownership through AIJ or JI.

The social and economic impacts of the PAP are essentially those of the Costa Rican SINAC. In many cases, the establishment of strictly protected areas does result in the displacement of persons seeking to farm or undertake other activities in these areas. The PAP, to the extent that it provides funds to purchase lands in National Parks and Biological Reserves, will accelerate this process. However, the SINAC is the result of a well-considered and established governmental policy developed over a period of over twenty years and promoted by governments representing both major Costa Rican political parties. These policies have only recently been affected by discussions regarding the possibilities for funding for SINAC through AIJ or JI. As is apparent in national legislation and in numerous statements, including the national plan of environmental policy recently published, the government of Costa Rica has determined that investment in biodiversity conservation should be a major component of its broader sustainable development program. While impacts on local communities are inevitable, the government has chosen to address this issue as part of its broader development policies, within the context of a modern state with a mobile population.

The issue of leakage -- whether the implementation of the project would have unintended or unforeseen impacts in other areas -- is often raised in connection with land conservation AIJ or JI projects. This concern responds to the fear that persons whose lands are purchased for conservation in one area will migrate to other forested areas and seek either to deforest these lands or sell them to the state for conservation. While at one time this would have posed a very valid concern in Costa Rica, in recent years this possibility should cause less worry for several reasons. First, there is little land available for settlement. As noted, almost all lands in Costa Rica are subject to legal claims, and such claims would have to be bought. Second, forested lands are now selling for a higher price than deforested lands, and there would be little incentive for persons primarily interested in agriculture to purchase claims to forested lands. Third, many forested lands are already dedicated to conservation or forestry management regimes, either in state protected areas or on private property. Furthermore, MINAE considers that the FFP addresses any possibility of leakage under the PAP by the fact it provides a framework for sustainable forestry practices on private lands throughout the country.

On the other hand, just as in any other country, proper management of a protected area requires not only an appropriate legal and institutional framework but also sufficient funds. Salaries, transportation, equipment, facilities, and maintenance, to name the most important, are expensive. In Costa Rica, some of the protected areas have good earnings for the services provided, and in some cases they have a strong support from environmental NGOs, but for the most part they still depend on the government’s general budget and most of the time receive a less than they need to comply with their legal mandate.
At this time, due to policies being implemented by the government to reduce its size and to control the internal deficit, SINAC seems to be facing a difficult time accomplishing its duties both as the agency in charge of Costa Rica’s protected areas and as the agency in charge of controlling forestry and wildlife activities. Vacant positions are almost impossible to fill and personnel in the different conservation areas is scarce. Parks are difficult to patrol, and the area of the parks is quite large for the few personnel available. Park rangers usually work on a fixed schedule of 20 days on duty and 10 holidays, so the administration of the area has to rotate them and try to get the most out of their time. As a result, personnel are sent to those parks that are facing the greatest threats. Other parks, including some national parks, only have the resources to afford one guard for the entire territory.

Furthermore, professional personnel are greatly needed in some conservation areas, specifically in areas far from the capital city, San José. As an example, the Osa Conservation Area does not have a staff biologist on-site, despite the great importance of the biodiversity in that area of the country and the numerous scientists and investigators that visit the area.

This situation represents a very important threat to the protection of the natural resources in Costa Rica’s protected areas and forested lands, and specifically to the consolidation of the conservation areas as a new concept in public protection of biodiversity. It also represents the major threat to the successful implementation of the PAP.

During the first phase of Costa Rica’s AJJ program, funding obtained from investors for some of the projects would be used to implement the project but not to support SINAC’s capacity sufficiently. However, some of the projects did include a breakdown of the budget that specifically considered the cost of monitoring and enforcement by SINAC. More recently, both the PAP and the FFP are proposing to use a significant portion of the funds obtained from investors to support the work that MINAE has to do, through the creation of a trust fund, and in this way increase the monitoring and enforcement capacity of this entity. Only if funds are sufficient to support the agency in charge of environmental law enforcement and monitoring will forestry projects be successfully implemented. Costa Rica’s program has identified this issue and it has addressed it in its current AJJ program. However, it is too early to make any judgement about how this support will be implemented. In addition, the PAP would provide funding for the creation of the Earth Center, a part of the Earth Council, which will implement different programs for the sustainable development of Costa Rica.
Endnotes

1 During the present pilot phase, joint implementation projects are officially termed “Activities Implemented Jointly”.

2 Interview with Franz Tattenbach, National Coordinator, OCIC, September 20, 1996.

3 Ibid.

4 Interview with Dr. Daniel Janzen, Santa Rosa National Park, June, 1997.

5 Ibid.

6 Land Use capacity studies have shown that 64% of the national territory should remain under forest cover, with 34.9% of the national territory suitable for sustainable forestry practices while 29% should be protected. Carlos Quesada Mateo, Estrategia de Conservación para el Desarrollo Sostenible de Costa Rica (ECODES) Ministerio de Recursos Naturales, Energía y Minas, San José: Servicios Litográficos, 1990. p. 44. At the same time, 46% of the national territory is presently used for cattle pasture while only 20% of the territory has this potential. Centro Internacional en Política Económica para el Desarrollo Sostenible (CINTERPES), Universidad Nacional, Políticas del Sector Forestal en Costa Rica, Heredia, May, 1996, p. 14.


9 Memorandum of Understanding Between the Costa Rican Ministry of Environment and Energy, the Royal Norwegian Ministry of Foreign Affairs, the National Power and Light Company of Costa Rica, and Consorcio Noruego,” San José, July 2, 1996.


11 Centro Científico Tropical. Valoración de los Servicios Ambientales de los Bosques de Costa Rica. San José. CCT. p. 7 y, Centro Científico Tropical y World Resources Institute. La depreciación de los recursos naturales en Costa Rica y su relación con el sistema de cuentas nacionales. Washington D.C. WRI.

12 Until very recently, forest was considered an obstacle to farming and as a matter of fact, cutting down trees was the most common way of proving possession of a property to claim land title.

13 Between 1975 and 1995, 388,046 hectares were occupied and 165,749 hectares were given by the government under these programs which mostly resulted in loss of natural forest. Centro Internacional en Política

14 It is estimated that during the 1960s and 1970s, 55,000 hectares of forest were incorporated into agricultural or cattle grazing activities every year.


16 MINAE, “Propuesta Técnica de Extensión Territorial del Sistema Nacional de Areas de Conservación” 1995, p. 3.

17 This incentive became convenient only for wealthy land holders because they were the only ones that had to pay this tax.


19 ECODES, Op Cit., p. 46.

20 Ley Forestal No.7575, February 5, 1996.

21 Article 3 of the new Forestry Law defines these environmental services as those that are given by forest and tree plantations and that have a direct effect in the protection and improvement of environmental conditions. They include offset of greenhouse gases emissions, protection of water, protection of biodiversity (to preserve it and for scientific or pharmaceutical purposes), protection of ecosystems, life forms and scenic places (for scientific or recreational purposes).


23 Ibid., Articles 28 and 31.

24 To date, over 200 landowners throughout the country have established what they have described as private nature reserves, while some of these have taken the further step of inscribing their properties as Private National Wildlife Refuges, for which they receive recognition from MINAE as well as tax breaks. This possibility is provided for by the Wildlife Law No 7317, from October 21, 1992.


26 An interpretation of more recent legislation such as the General Law of the Environment provides a legal basis for the economic sustainable use of all protected areas in Costa Rica.


29 Lands in national parks and biological reserves have to be purchased by the State to provide absolute protection but in other protected areas economic activities can take place while protecting the area’s natural resources.

30 At the outset, these agencies were a part of the Ministry of Agriculture and Ranching, later of the Ministry
of Natural Resources, Energy and Mines, and, at present, of MINAE.

37 Ibid. Article 16.
38 Ibid., Article 5.
42 Ibid., p. 31.
43 It is important to point out that the klinik is a tropical pine and for this reason it is compatible with other species from the tropics.
44 Cantonal Agricultural Center of Turrialba.
45 KLINIFIX. Project proposal.
48 Interview with Franz Tattenbach, Op cit.
49 Ibid.
51 Ibid.
52 Ibid. It is important to point out a key difference between CTOs from the PAP and the FFP. CTOs from the FFP are issued when all activities related to them have been completed. And CTOs from the PAP, because they are certified by SGS, are issued before activities related to them have been completed.
53 Interview with Franz Tattenbach, Op cit.
54 Ministerio del Ambiente y Energia, Sistema Nacional de Areas de Conservacion, Contrato Forestal -- Manejo de Bosque. No date.
57 Interview with Franz Tattenbach, Op cit.
58 Costa Rican Ministry of Environment and Energy.

60 Ibid.
61 As noted above, this requirement, contained in earlier versions of the Forestry Laws, was somewhat ambiguously altered by the Organic Law of the Environment in 1995. Ley Organica del Ambiente, Op cit., Article 37.
62 Constitutional Court of the Costa Rican Supreme Court. No. 796-91 from the 9 hours, 15 minutes of April 26th., 1991.
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Acknowledgments. We are grateful for comments on earlier drafts from Kathrine Christen, David Downes, Christiana Figueres, Peter Frumhoff, David Hunter, Laura Kosloff, Alice LeBlanc, Owen Lynch, Jack Putz, Mark Trexler, and Franz Tattenbach. Research, clerical and production assistance were provided by Eli Hillman and Valeska Populoh. In addition to support from W. Alton Jones Foundation, funding from the U.S. Environmental Protection Agency, the Turner Foundation and The Tinker Foundation make CIÉL's research in this area possible.