



**NEW AMERICA**  
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**THE NEW FINANCIAL ARCHITECTURE AND THE OLD ENVIRONMENT:  
DO WE NEED A DOUBLE STANDARD?**

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Presented at the  
**Working Group on International Finance and the Environment**  
**New America Foundation**  
December 2000

**I. Introduction**

1. Financial crises have been with us for about as long as financial markets. The Tulip Bubble of the 17<sup>th</sup> century may be among the first. But there have been plenty since then, both in national markets and in international financial markets. The debt crisis of the 1980s was the fourth major international financial crisis since the middle of the 19<sup>th</sup> century. That one had barely subsided when Mexico happened (1994-5) and then the Asian Financial Crisis followed hard on its heels – beginning in 1997 and spreading rapidly the following year.
2. The exuberance of financial markets seem persistently to exceed the capacity of regulations and common sense to limit the excesses of boom and bust that characterize these markets. The Asian Crisis shocked the financial and development communities. This is more than a little surprising, since the classical signs of a boom were evident and pointed out by a few willing to question prevailing wisdom, including this author.<sup>2</sup>
3. The pattern of rapid expansion of capital to developing countries in search of high, short-term profits led to flows well beyond the absorptive capacity of recipient countries. Implicit assurances that investors would be protected by the international agencies, such as the IMF, led lenders to minimize or ignore the potential consequences

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<sup>1</sup> I would like to thank Dr. Jane Pratt, President and CEO of the Mountain Institute for much thoughtful comment and advice on this paper. She originated the term “Double Standard” in this sense.

<sup>2</sup> See Managing Capital Flows in East Asia, John Shilling and Yan Wang, World Bank, 1996

## Do we Need a Double Standard?

of such a degree of overexposure. But at some point, sentiment shifted and everyone tried to get their profits out in a hurry. The crisis hit. Some lenders were protected, but others suffered financial losses in the crisis, losses which they are still trying to recover.

4. However, these financial losses pale in comparison to the real losses suffered by the populations of the countries that suffered, and are still suffering, from the consequences of the crisis. It is estimated that the real income of the typical Mexican is only just now returning to the level prior to the crisis. It will be several years before the typical person in Indonesia or Thailand will again see their pre-crisis levels of income, not to speak of other aspects of their living standards.<sup>3</sup>

5. Beyond the impacts on the public at large and on social structures, these recurring financial bumps have serious repercussions on the sustainable use of environmental capital. They often result in over-investment in exploitation of natural resources, financial busts force people to exploit more marginal land, and recoveries often lead to unsustainable levels of exports of natural resources as a quick way to pay off debt and restore growth. While use of resources is normal, the financial crises lead to wasteful and unnecessary abuse, which is rarely accounted for.

6. This paper will propose reforms to financial and investment criteria that will promote environmental as well as financial sustainability. The next section will look at the reform agenda that came out of the Asian crisis and what was missing. The third section will bring in the key environmental considerations for financial analysis. The fourth section will examine the shortcomings of current investment criteria. The fifth section will suggest an Environmental Double Standard for investment selection. Two examples of how the double standard could be used will then be presented, followed by the conclusions.

### **II. The Reform Agenda After Asia**

7. In the aftermath of the Asian financial crisis, many of the basic assumptions about the inherent value of capital flows and stability of financial markets were called into question. Economists and other serious observers were forced to admit that all forms of capital movement were not necessarily beneficial to the recipient (or the lender), and that without well-managed financial systems, instability and extremely large losses could occur. More than in previous crises, the experts were willing to look into the basic structure of the system rather than just blaming the ineptitude of various players – through there was enough of that as well.

8. Serious reform was in order. Early responses to the depth and extent of the crisis called for fundamental change – a New Financial Architecture. As events unrolled, conservative tendencies, vested interests, and early recovery in some of the affected countries weakened the demand for radical change. Despite early hopes, the “new architecture” proposals now emerging turn out to be more of a modest facelift on the old façade: improve the rules governing the financial sector, increase the monitoring by international agencies, tolerate some controls on short-term capital; and perhaps make

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<sup>3</sup> Even when GDP based measures recover, it is usually much longer before average levels of income or consumption of the middle and poorer classes recover because of the burdens of debt repayment and financial restructuring.

## Do we Need a Double Standard?

rescheduling bonds a bit easier. Proposals for deeper reform, where considered, were rejected. The factors that led to the 1997 crisis were increasingly dismissed as short term and readily fixed. Back to business as usual.

9. Or is it? Many of the underlying factors that precipitated the earlier crisis remain. There are rumblings that reforms in financial systems in East Asia have been scantier than believed necessary, that capital is again flowing in large amounts, and that the potential for instability is growing. It is hard to take much comfort from the very modest reforms implemented so far. Each of the earlier crises led to regulatory and other reforms that were supposed to fix the problem. And each time, financial markets, in search of short-term gain, have found ways to over-extend, create new instabilities, and crash.

10. The point here is not to offer another post mortem on the crisis. This paper will draw out the implications for much more profound and long term issues – the impacts of these financial crises on the sustainability of the environment, on its capacity to continue supporting long-term growth, and on the stability of social frameworks that give people more control over their own lives and livelihoods. And it will suggest that expanded investment criteria are needed to help mitigate the negative environmental consequences of these continuing financial crises.

11. What is the connection between finance and the environment? Simply put, the environment is the ultimate source of the resources and sinks on which economic activity depends.<sup>4</sup> It is a collection of productive assets that can be conserved and used productively, or squandered and wasted. And these assets are highly interdependent – as are the assets of a modern economy – failures in one environmental area can have serious repercussions in other, seemingly distant, areas. Furthermore, environmental resources are not unlimited. They can be exploited beyond sustainable levels locally, nationally, and perhaps even globally. Often overuse of a resource is irreversible -- the resource cannot be regenerated once used or reduced beyond threshold levels. Unfortunately, these threshold levels are often difficult to read, and profits can be made from overusing a resources well beyond its point of irreversibility. In fact, there is often a rush to exploit such profit when there is concern that limits may be placed on the further use of a resource. Private gain is all too often elevated above the public good of preserving a natural asset.

12. Financial sustainability and crashes actually have many similarities with environmental sustainability and the potential for subsequent disasters – only the time frame is much shorter for finance and the effects less threatening to human survival. Financial crises threaten the incomes and wealth of individuals and firms, environmental crises threaten the survival of species and the underlying capacity of nature to support the economic systems on which we have some to depend. Where the environment is degraded, resultant losses diminish standards of living and the potential for recovery of economic growth.<sup>5</sup>

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<sup>4</sup> Herman Daly, *For the Common Good: Redirecting the Environment Toward Community, the Environment, and a Sustainable Future*, Beacon Press, April 1994, and *Beyond Growth: the Economics of sustainable Development*, Beacon Press, September, 1997

<sup>5</sup> For example, the impacts of Hurricane Mitch in 1998 in Central America were exacerbated by avoidable environmental degradation, and led to very severe economic and human losses.

## Do we Need a Double Standard?

13. It was clear to some before the Asian Crisis that the capital flows were not sustainable, that they posed a threat to the stability of those economies, and that capital flight would have momentous consequences. But the potential short-term gains led many individuals and firms to continue investing in the expectation of getting out before the crunch. When it became clear that the flows were not sustainable, the resulting crash caused much economic damage, some of it irreversible. Here, the reaction time was measured in months. With the environment, it is generations. Despite the time differences, the kinds of solutions required call, in both cases, for better management of the sector, stricter rules, monitoring, and enforcement to prevent private greed from causing a great deal of public harm.
14. In addition to these similarities, there is a deeper reason to look at the financial crisis and resulting architecture. What happens in financial markets can have severe and lasting effects on the environment. Capital flows are not separate from the real economy. They finance real investments in productive capacity, debts have to be repaid by the sale of real goods, and events in the financial markets impact the levels of production in the real economy. It is estimated that, among other effects, the financial crisis in East Asia is contributing to severe environmental degradation in the region.<sup>6</sup>
15. The immediate impacts involved laid-off workers returning to rural areas and trying to bring marginal land under cultivation, reduced attention to land maintenance, and relaxation of many pollution abatement rules to reduce direct financial costs of affected industries. More lasting damage comes as countries try to increase production and exports to repay debt. In many cases, exploitation and export of natural resource based goods are the easiest and quickest way to generate the needed foreign exchange. Logging and timber related exports have increased (e.g. Indonesia, Papua New Guinea, Solomon Islands, Russia); forests have been cleared for plantation agriculture (e.g. Indonesia for palm oil, Philippines for bananas, Brazil for soybeans); and mineral exports have been increased (e.g. Peru for copper, Russia for oil and gas). These cases and many others were driven by the desire to increase exports for debt related reasons and have been done in ways that are unduly detrimental to the environment.
16. The new financial architecture is looking only at financial sustainability. It has not begun to address the deeper issues of environmental sustainability. To be sure, some of the measures of financial stabilization may have positive impacts on environmental sustainability. Lower interest rates are more conducive to preserving long-term assets and making long-term investments, which tend to be more friendly to the environment. Less volatility contributes to better long-term planning and willingness to consider environmental investment. Lower debt accumulation reduces the pressure to export natural resources quickly. But these are indirect effects and unintended benefits, not conscious design features built in by the new financial architects. In fact, there are negative side effects to the global financial system as well, such as ready access to capital to finance resource exploitation, increased demand for conspicuous consumption, and ease of camouflaging shady transactions.<sup>7</sup> Beyond these indirect effects, the new financial architecture can and should be 'renovated' to help promote environmental

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<sup>6</sup> See WWF Reports

<sup>7</sup> Bruce Rich, Trading in Global Negligence: The Need for Reform of Export Credit Agencies, New American Foundation presentation, June 20, 2000

## Do we Need a Double Standard?

sustainability. Think of it as reinforcing a weakening foundation for the financial establishment.

### **III. Environmental Fundamentals**

17. Like the financial sector, the environment presents a complex mix of public and private goods. There is a large scope for legitimate private gain from enlarging financial activities and from productive uses of the environment. There are also large public benefits from a well-functioning financial sector and from non-marketed environmental services and amenities. And in both sectors,<sup>8</sup> there is a potential for exploitation of the public goods for private gain, for example through Ponzi schemes or excessive deforestation. In the former, public belief in the credibility of high returns in the financial system as a whole is used to defraud many individuals. In the latter, the private gain from clear cut logging will result in land degradation which deprives downstream inhabitants of flood protection and water storage and quality, among other negative impacts.

18. One can cite more examples, but the point is that a stable and deep financial sector has many basic public good aspects, i.e. benefits to many beyond what is captured by the sale of specific financial goods and services. Stable currencies promote more productive economic activity, reliable credit systems support more extensive savings and investment programs, sophisticated financial markets encourage complex and highly specialized endeavors that have contributed to rapid technological progress. The smooth functioning of these markets is a public good. Many of the benefits extend well beyond the gains made by the individual participants. And conversely for negative impacts. Disruptions of financial markets have deep negative repercussions beyond the financial sector itself – the aftermath of the Great Depression being among the more telling examples. As a result, it is widely accepted that public – usually government -- regulations, rules, and government enforcement are necessary to protect the public goods involved from private exploitation and assure the smooth functioning of these markets.

19. Although the specifics are different, the environment also provides many public goods whose benefits are not captured in markets, only the time span for many effects is much longer. Just as we expect our currency to remain stable and our long-term assets to retain their value for our children, we have a right to expect that our air and water will remain clean, our natural resources available, and our climate undistorted<sup>9</sup> for us and our children. This rough definition of sustainability is illustrative. What is clear is that the unregulated market does not guarantee such results. Indeed, its incentives are often the reverse – to convert environmental assets into financial or other assets for short-term gain, in part because the market does not recognize the long-term costs involved in that transformation. As with financial markets, there is a need for public involvement through regulations and incentives to assure that the public good objectives are met and that private gain does not result from the unrestricted depletion of public goods.

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<sup>8</sup> Note that in both cases, the term 'sector' is used for convenience. Finance, and even more so the environment, are much more than a sector among others, but a pervasive set of assets and relationships that underpin economic and natural activity.

<sup>9</sup> At least not forced by man-made activities beyond its normal patterns into more violent patterns that reduce the quality of life, or even the capacity to maintain our standards of living.

## Do we Need a Double Standard?

20. How does this all involve the financial markets, other than by very rough analogy? The real purpose of financial markets is not the massive amounts of paper trading that dominate many of the numbers. It is the allocation of resources to the most productive real investments that increase real production. Those investments impact the environment, and I will argue that the financial sector has both an interest and a responsibility to make sure that they do not detract from environmental sustainability. The interest is that degradation will eventually undermine the resource foundation of the whole economy and lead to long-term environmental and economic crises.<sup>10</sup> The responsibility is that the financial sector, by virtue of the special benefits accorded to it by the public to protect its function,<sup>11</sup> should also help protect public goods. And of course, this should be reinforced and augmented by explicit public policy.

21. For the purposes of this discussion, let us stipulate that the market is the primary and generally most efficient tool for achieving our long-term growth and development objectives – a better standard of living and sustainable lifestyles for all. But we can also agree that the market is subject to inherent imperfections – it cannot foresee the future, many environmental (and other) benefits cannot be adequately quantified and priced in the market, and some public authority, usually the government, has the responsibility to try to correct those market imperfections in the interests of the public benefit.

22. The government uses both direct and indirect instruments in the financial sector. Some instruments are more efficient and less distorting than others, and some encourage private agents to institute good self-regulatory measures on their own. Much of the regulation in the financial sector is, in fact, self-imposed because the responsible private actors recognize that it is in their interests to do so and because it contributes to their public image of reliability, which in turn helps their business. As the public is coming more and more to value environmental as well as financial responsibility, the same argument will carry over.

23. In the environmental field, governments already have several tools with which to promote sustainability. These include command and control regulations; fees for environmental services (polluter pays), market incentives for achieving certain targets; public reporting of environmental performance;<sup>12</sup> policy actions (e.g. eliminating energy subsidies, promoting public transit); published standards;<sup>13</sup> and creating artificial markets

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<sup>10</sup> For example, a good case can be made that bad financial management – providing too much credit – in relation to the fishing industry has led to the overfishing and depletion of the majority of the high seas fish stocks. Too many boats were purchased with loans that had to be repaid, leading to fishing beyond sustainable capacity simply to meet loan payments. This has resulted in the closing of some ocean fisheries and the elimination of parts of the industry. These decisions were partly due to public policy actions, but the market responded because it lacked any criteria to evaluate the environmental consequences. Public policy decisions should also be subject to evaluation of their environmental consequences.

<sup>11</sup> For example, deposit insurance schemes, various formal and informal forms of public back-up of financial institutions, and the facilitating regulatory structure by the government all enable the profitable growth and diversification of the sector.

<sup>12</sup> *Greening Industry*, World Bank, 2000 and US government programs to recognize green production.

<sup>13</sup> E.g. the *World Bank Pollution Handbook*, 1998

## Do we Need a Double Standard?

through tradable emission permits,<sup>14</sup> etc. In addition, the private sector is beginning to adopt more environmental objectives on its own. A number of large companies have adopted sustainability objectives as part of their corporate strategies, and some market based groups are establishing green criteria for measuring and investing in firms based on their environmental standards.<sup>15</sup>

24. These efforts are highly commendable and should be expanded, but they are not enough. They often relate to programs to eliminate waste, to establish sound managerial practices, or to adopt basic pollution limitations. They do not systematically build environmental sustainability into basic investment decisions, take into account impacts on the economy as a whole, nor encourage sustainability as a core objective.

25. The rest of this paper will urge that private investors should develop their own environmental criteria and will suggest ways to design what we can call, as initially proposed by Jane Pratt, a “double standard” of investment evaluation that will take environmental concerns properly into account. The “double” here is a set of environmental investment criteria parallel to the normal rate of return criteria that is today the “single standard” for investment decisions, which is inadequate. The double standard could be imposed by governments through extension of current environmental assessment rules, or could be developed and adopted by the financial sector as part of its due diligence and responsibility in financing sound investments. The latter is preferable.

### **IV. Shortcoming of the Conventional Investment Standards**

26. Normal investment criteria look at the financial rate of return of a project. What are the direct costs associated with the project, including acquisition of land and other materials, construction, capital equipment, etc. plus interest and other charges during completion? And then what are the net returns over the life of the project? This would include any net profits, measurable gains to other activities or assets of the project owner, etc. If the projected net present value of benefits minus costs is sufficiently positive, or the internal rate of return high enough, the project is acceptable and would attract financing.<sup>16</sup> This analysis is based solely on out of pocket costs and benefits to the investor.

27. More sophisticated analyses undertaken by institutions such as the World Bank would look at the economic rate of return, which would take into account indirect costs, for example, the infrastructure that the government might be required to build or expand, the effects of market imperfections, such as general subsidies to energy; and indirect benefits of the project, such as the creation of additional markets for local products, training the labor force, etc.

28. The economic rate of return may be higher or lower than the financial rate of return, depending on the composition of indirect costs and benefits. Generally, this is a better indicator of the value of the project to the community as a whole. A more favorable

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<sup>14</sup> See Financing Global Environmental Futures: Using Financial Markets and Instruments to Advance Environmental Goals, by Glenn Yago, Milken Institute, May 18, 2000 for a discussion of C&C and tradable permits

<sup>15</sup> ISO 14000, the Dow Jones Sustainability Group Index, and others

<sup>16</sup> Abstracting from various political and institutional factors that may weigh on any individual investment decision, including unfortunately costs of bribes (however defined and characterized) in some places.

## Do we Need a Double Standard?

project design would not necessarily get funded if the financial rate of return were too low, regardless of the economic rate of return. The analysis may suggest changes in policy to make sure that the private and public results are more in line, or the need for subsidies or other measures to compensate for the economic benefits that do not generate a private gain, or a tax for the economic costs that are not reflected in the private costs. The differences between the economic and financial rates of return are usually due to the effects of public goods or bads that are not reflected in market prices, or to other market imperfections.

29. Even more sophisticated recent analyses of investment criteria suggest that option values and risks need to be taken into account more carefully than in the conventional forms of project analysis.<sup>17</sup> When this is done, it typically argues for adopting a much higher 'hurdle value' for the investment, i.e. a higher internal rate of return to qualify for funding. There is some evidence that the private sector implicitly uses this kind of criteria, requiring hurdle rates of 30% or more, or 'payback periods' of two to three years, compared to target rates of return of 10-15%<sup>18</sup> usually accepted by public institutions such as the World Bank and governments. The private decisions reflect judgments about risk to profits, however, not the environment.

30. Currently, environmental factors are included in these analyses only marginally, and generally as a constraint. In the financial analysis, environmental factors would be included if there were direct charges for certain levels of environmental damage, a fee per unit of pollution for example, or if there were subsidies or other incentives. In some cases, an environmental assessment is mandated, and certain mitigation or avoidance measures would be required to address identified environmental threats, e.g. preserving a wetland or a certain habitat, relocating parts of the investment to less threatening areas, reducing levels of pollution, or offsetting unavoidable damages with environmental enhancement elsewhere. These costs are then added into the other projects costs and the rate of return recalculated. If the resulting additional costs are high, there is likely to be substantial negotiation between the investor and authorities to reduce the costs one way or another, sometimes to the detriment of the environment; or the project would be dropped.

31. In economic analysis, non-marketed environmental costs and benefits can sometimes be estimated and included in the calculations. This could involve making an estimate of the costs of air pollution from a power project on the health of the people in the airshed, of the impacts of additional transportation activity, etc. Benefits, such as providing alternative jobs to people otherwise engaged in activities degrading land or reducing diversion of a watercourse etc. would also be included. These calculations would encompass some of the findings of any environmental assessment, and they could also lead to renegotiations of the terms of the project if the impacts were large.

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<sup>17</sup> See Dixit and Pendyck, *Investment Under Uncertainty*, Princeton University Press, 1994. Option values consider the possibility of undertaking the investment at a later time or using a different approach or other use of non-fungible resources (e.g. land) over time.

<sup>18</sup> This threshold is usually related to the opportunity cost of capital, which is usually based on the normal interest rate or sometimes the social discount rate. These are assumed to reflect the preference for consumption today compared to the future.

## Do we Need a Double Standard?

32. Looking at option values and risks expands the scope for taking environmental values into account. Options to consider other uses of an asset may suggest that the future values of a forest from non-timber products may be large relative to a clear-cut today, or that a conversion to a managed plantation may preserve at least some of the forest values and still produce much of the timber value over time. Alternatively, it may establish that the economic benefits of an intact watershed outweigh the financial benefits of timber harvesting. Looking at risks may suggest high potential costs in the event a disaster occurs. Many of these risks are environmentally related, such as flooding after extensive logging, or loss of water supply due to excessive pumping of groundwater.<sup>19</sup> It is hard to quantify these kinds of hazards for project analysis, but the insurance industry is beginning to take environmental risks seriously as losses rise.<sup>20</sup> The potential costs of such risks, however, are rarely taken into account in project evaluation.

33. Finally, the creation of artificial environmental markets is a highly innovative way to try to incorporate the environment into investment and business decisions in ways commensurate with market principles. To date, these cases have dealt primarily with pollution emissions. An airshed or watershed is defined and a level of permissible emission established. Rights to emit units of pollutants up to an established limit are then distributed (by right or by auction) and can be traded under certain conditions. No pollutant emission is allowed without owning a pollution right as defined above, and the possibility of trading helps make control of the pollutant most efficient.<sup>21</sup> There are some successful cases of use of such permit systems in developed countries, but it requires a sophisticated monitoring and trading system to work. For investment analysis, it does allow investors to estimate environmental abatement costs and include them into their investment analysis, where such markets function effectively.

34. What is clear from this discussion is that to the extent that environmental 'costs' or 'benefits' are not reflected in normal market transactions -- and they rarely are -- it requires considerable effort to calculate and express them in market friendly terms. Estimates of the costs of environmental degradation or loss of amenity values would have to be made in market-based terms and units. In effect, economists try to impute a price for environmental benefits and harms that are not formally traded in the market. These are necessarily estimates and are often subject to dispute between those wanting to protect the environment and those who want to benefit from the project at least cost. Different people have different values and there is no market to mediate the valuation. In some cases, elaborate mechanisms have to be constructed to create market-like exchanges that try to estimate the costs.<sup>22</sup>

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<sup>19</sup> The recent massive flooding of the Yangtse River, or potential exhaustion of ground water in parts of India (or the US) are real risks with identifiable causes.

<sup>20</sup> The first interest of the insurance industry is to get a better handle on the magnitude of the risks. Then it may also look at ways to reduce the likelihood of the hazards.

<sup>21</sup> Those who can reduce emissions more cheaply will do so and sell their rights (or purchase fewer), while those who find it expensive to reduce emissions will buy more rights. Since this is all subject to an overall limit, the desired level of emission is attained at least cost, at least in principle.

<sup>22</sup> See "[Using Financial Incentives and Market Based Schemes to Promote Global Environmental Objectives. Some Cautionary Considerations.](#)" David Friedman, New American Foundation, July 14, 2000 for more discussion of these factors.

## Do we Need a Double Standard?

35. Even with all of this effort to ‘marketize’ environmental costs for economic analysis and for inclusion in investment decisions, far too much is left out relating to environmental sustainability. The broad public good nature of the environment, the long displacement in time and space of negative impacts, and the short-term gains to be had from exploiting the environment all militate against fully incorporating the environment into a market cost structure. A second standard is needed. To which I now turn.

### **V. Towards an Environmental Double Standard for Investment**

36. Having realized that we cannot translate all our environmental concerns into economic variables for investment analysis, we should develop a second standard to address sustainability -- the environmental viability of an investment -- in parallel with the financial viability. This is not an easy task, but one that is becoming more important as the extent of threats to environmental sustainability grow.<sup>23</sup> We have already seen the problems of quantifying environmental impacts for conventional analysis. How would we go about constructing an environmental calculus?

37. Approaching this from the point of view of science rather than economics, there is a great deal of material that we can use. To begin with, we can distinguish local impacts from systemic ones. The former are easier to identify, and it is often possible to identify actions to prevent increased threat to local sustainability from a biological point of view. It may mean preserving and not disturbing specific habitats. More often, it is likely to involve mitigatory or remedial measures. It may also mean protecting adequately against the risk of a local disaster, such as massive leakage from a mine tailings settlement pond. The objective is not to absolutely preserve and leave every piece of nature in a pristine state. Rather, the objective is preclude the kinds of degradation that pose a longer-term threat to sustainability.<sup>24</sup> Local issues can and should be open for a clear discussion of options and trade-offs.

38. However, many environmental concerns involve large-scale or global systems and long-term feedbacks. These often pose the greatest threats to sustainability and are often the hardest to analyze. Climate change is one of the most global, but there are many others that fall between local issues and the global: maintenance of representative ecosystems, including fish stock depletion; water catchment issues; loss of yield capacity for crops due to a variety of reasons; persistent organic pollutants, and so on.

39. For systemic issues, which span local ecosystems and do not respect man-made boundaries, it is more difficult to identify the impacts of a single project, which often seem minor in relation to systemic issues. It is more difficult to determine when critical danger points are being approached – points that may lead to discontinuous changes or

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<sup>23</sup> For those who do not believe that such threats are credible and would pursue investments without any concern for sustainability of the environment, the question is “Would you provide the rest of us with an insurance policy or other guarantee to indemnify us if the threats we are concerned about and that you deny do occur?” If you are right, that should be a very cheap policy compared to the gains to be obtained from continuing to exploit the environment.

<sup>24</sup> Looking ahead a bit, it could be reasonable to build a road through an undeveloped area provided the road served an important purpose and that the design and routing ensured the integrity of wildlife habitat. An environmental investment standard would make sure that the interests of common environmental wealth and sustainability would receive full and due attention in decisions about investments and economic development programs..

## Do we Need a Double Standard?

irreversibilities.<sup>25</sup> And it is often more difficult to find alternative activities to those that cause such latent threats to sustainability. There are likely to be many independent sources of a threat to the environment (e.g. methane and global warming), and causal chains may be complicated.

40. There is a widespread assumption that when an environmental problem becomes pressing enough, there will be enough incentives to find the right technological solution. The fact that we have survived so far does not provide proof of this assumption. There are cases in human history where a solution was not found and entire societies (substantial ones) have disappeared because their environment became too degraded to sustain them. Investment criteria need to squarely face the environmental impacts and risks of projects and assure that they meet appropriate standards for the environment as well as for the bottom line.

41. As noted above, a lot of information is available on these issues in terms of both local and systemic impacts. We must also admit that there is a lot we do not know and many potential impacts that are still poorly understood. But do not forget that all investment criteria have to take the unknowns and risks of the future into account. The financial projections of any project are not certainties, but best guesses. The financial impacts of projects are not known with any more certainty than the environmental impacts, as attested by the number of failed projects. The purpose of the financial analysis is to identify the risks and screen out projects which present too much risk for the expected return. The same should be true of the environmental standard we are proposing.

42. Financial risk analysis and management is an art form that goes back decades, indeed centuries.<sup>26</sup> It has had a long time to improve from very crude beginnings. Our initial efforts to design an environmental investment standard will have to start with rough and ready measures and expect to be refined and perfected over time. But we need to start now. In fact, a good start has been made. The system of environmental impact assessments currently in place in several countries provides a basis for gathering and analyzing local environmental impacts. Where national environmental strategies or action programs have been prepared, they may identify critical threats to environmental sustainability. This information is currently used as described above to set some environmental constraints on projects and provide estimates of costs to be included in the financial analysis.<sup>27</sup> In addition, the scientific community has amassed a great deal of information about longer-term sustainability thresholds and measures. This information can be brought to bear more systematically on project analysis.

43. What is needed is to set some environmental standards and investment criteria that any major project must meet to be eligible for support from the international financial system. Major financial houses, as part of their standard due diligence, would

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<sup>25</sup> It is often the case that such points are passed before there is obvious evidence that there is a danger, as has happened with some fish stocks, was nearly the case with the ozone layer, and may yet be the case with global warming.

<sup>26</sup> See *Against the Gods: The Remarkable Story of Risk*, Peter L. Bernstein, John Wiley & Sons, 1998.

<sup>27</sup> It is also true that the process itself has been used to stop projects where there is strong opposition, but not on the basis of standards, but of the relative power of contending parties. While this cannot be avoided, there is a strong reason to make the process more open and transparent with clear standards.

## Do we Need a Double Standard?

be required to review projects for their environmental sustainability as well as their financial sustainability. The project would have to pass both to be eligible for investment.<sup>28</sup>

44. This would require a lot of popular support, but is by no means out of the question. In fact, financial institutions and their shareholders should welcome such measures as a practical safeguard against liability risks as well as an ethical guidepost in the conduct of their business. Corporations do need a level playing field to compete, so there must be some mechanism to assure that the bulk of the industry adopts the standard in order for it to be effective. Voluntary adoption by a single firm is unlikely.

45. The initial criteria should be relatively simple and straightforward to facilitate early implementation. Standards could be set in three major areas of concern to environmental sustainability: Air and water quality from a set list of locally adapted levels; Biodiversity conservation; and Sustainable land and resource use.<sup>29</sup> Initially, the proposed criteria would be that a project could not impair sustainability in any of the three areas and must improve sustainability in at least one of them.<sup>30</sup> If the project does not meet these criteria, it would have to be redesigned until it did, or abandoned. Meeting these criteria would be independent of meeting any financial criteria. While redesign to meet the environmental criteria would likely have an impact on the financial return, it is surprising how often the result turns out to have a positive impact, once the whole set of concerns are taken into account and more creative approaches demanded.<sup>31</sup>

46. The criteria are designed to rely on ordinal measures to begin with and are likely to be addressed with information readily available from EISs, national statistical data, and other extant sources. The challenge will be determining whether the impacts do or do not contribute to sustainability in a meaningful sense. For local issues, it is likely to be feasible to identify potential pollutants, threats to land use, and biodiversity and to include adequate design and/or mitigation measures in the project. Applications of the environmental criteria to specified projects could readily proceed.

47. It will be more difficult, but still possible, to apply environmental sustainability criteria to investments that affect broad, systemic issues. For example, once it were clear that the level of fishing for certain species had or was leading to catches beyond sustainable yields, then no additional investments to expand capacity in that sector (boats, processing plant, etc.) would qualify under the biodiversity criterion. The related questions of allocation of existing catch would have to be worked out through political means. I admit that this is not a simple task, but it is better for sustainability than competitive over-fishing. This, in principle, addresses part of the challenge of the 'tragedy of the commons' problem by stopping support of investments that contribute to over-

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<sup>28</sup> Many reputable financial institutions already apply the guidelines in the World Bank's Pollution Handbook to their major investments, so the proposed extension is not a huge new step.

<sup>29</sup> Herman Daly has proposed assuring sustainability of resource use, throughput, and waste absorption. This could also be a basis for the investment criteria if separated from some of his other proposals. [check reference]

<sup>30</sup> I would not suggest eliminating other environmental standards already in place until this kind of criterion is refined and deemed broadly applicable.

<sup>31</sup> See *Natural Capitalism*, by Paul Hawkins, Amory Lovins, and L. Hunter Lovens, Little, Brown, and Company, 1999 for many examples.

## Do we Need a Double Standard?

exploitation by integrating an environmental rather than an exclusively economic perspective.<sup>32</sup>

48. Global issues, such as greenhouse gas emissions are more difficult to address since an immediate cessation of new projects that produce GHG would be a horrendous economic blow. Furthermore, it is not clear what level of GHG emission is sustainable or whether the total needs to be reversed. In this area, some sort of transition criteria would have to be developed that would define a total amount of GHG emissions permissible in major investments on a country-by-country basis in line with the direction of current international conventions. These could be distributed by some sort of auction or other process to allocate the emissions within countries. An alternative would be to agree on a permissible level of GHG emission per unit of net economic output from a given project, perhaps by sector. This kind of a cut-off point would assure that GHG would only be produced from projects that had high economic potential. There may be distributional issues that have to be taken into account, but this would be a step toward providing economic incentives to lower GHG production.

49. In practice, particularly initially, such criteria could only be applied to large projects with high visibility. As experience and broader support is gained, the range of application could be increased. Not only would the financial sector play a key role, but the various affected industries should be very much involved in setting the sustainability standards for their sectors. This should be done with outside expertise and advice, but over time, as industries come to accept more and more the desirability of achieving sustainability, they are likely to be able to take more responsibility for setting their own standards, subject to independent scientific certification.

50. The initial application of such criteria will need some mechanism to ensure wide acceptance in the financial industry. One possibility is direct government imposition, but that is likely to be inefficient and strongly resisted. A better option would be for the industry (or at least the responsible firms) to adopt such a standard by mutual agreement in order to build public image (or respond to public pressure) and preempt formal government imposition. Common application by the bulk of the industry would be necessary to avoid competitive pressures to evade the standard. As described above, self-regulation is already accepted practice in the financial industry as a necessity for long-term efficacy and expansion. This proposal is a first step to expand the area of regulation to include environmental as well as financial sustainability.

51. The following section will describe two real life situations where such an environmental double standard should be applied and indicate how it would work. One concerns the rehabilitation of the domestic timber and plywood industry in Indonesia after the crisis. The other concerns an international consortium investing in a new copper mine in Peru.

### **VI. Examples of the Environmental Double Standard in Action**

52. *Indonesia Timber Industry:*<sup>33</sup> The timber and plywood industry in Indonesia was dominated by a cartel of local firms prior to the financial crisis. As a result of special

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<sup>32</sup> More technically, it involves a community approach (common adoption of the double standard) to resolve a public good problem that cannot be addressed through a pure market response.

## Do we Need a Double Standard?

political favors granting access to forests, a ban on log exports, and other non-market actions, the industry expanded throughout the 1990s and was a major export earner. By various estimates, the capacity of the processing industry (sawn wood, plywood, and pulp and paper) exceeded the sustainable yield of the forests by between 50% and 100%.<sup>34</sup> The financial crisis that struck in 1997 greatly slowed forest activity in the short term. It also revealed the financial weakness of the cartel and conglomerates that owned the timber concessions and processing factories. A combination of political and financial restructuring led the government to assume temporary ownership of these industries (and a number of other financially troubled industries) as a result of settling the debt and other financial obligations of the original owners. The firms were highly leveraged with debt from captive banks. Neither the banks nor the industries were financially solid enough to weather the crisis, and they had to be rescued or liquidated by the government.

53. A government agency, IBRA, is responsible for managing the assets acquired from the restructurings that followed the crisis, and eventually for their liquidation to maximize the value to be recovered by the government. It is estimated that IBRA may at best recover about one third of the government's losses from the affair. A number of the former owners are now trying to use their influence and connections to re-acquire their old assets at a fraction of their former value, including in the timber industry. IBRA is in a difficult position, trying to maximize the financial recovery of assets, trying to prevent a return to the former patterns of poor financial mismanagement, and resisting political pressures to favor the old elite.

54. Looking at the timber industry alone: on the one hand, maximizing the value recovered would argue for trying to sell all the timber processing assets to the highest bidders to get the best return and the largest increase in exports in the short term to meet the country's foreign debt obligations. On the other hand, the agency is trying to avoid recreating the exploitative situation that existed *ex ante*. It is under pressure from environmental groups to take stronger actions to preserve the forests and prevent further deforestation, especially since that had been the root of so much of the corruption in the prior regime.

55. This is a situation that strongly calls out for application of the Environmental Double Standard. First, IBRA should apply financial criteria and calculate which units offer the highest financial rate of return, based on estimated operating costs, market opportunities, etc. and rank the units to sell on that basis. Then it should apply the environmental criterion to the whole industry. In this case, the total capacity of the industry exceeds the validated sustainable yield by a substantial margin. If we use the most conservative estimate of 50% excess capacity, then the least productive one-third of the timber processing units would fail on the environmental sustainability criterion. They should be permanently closed by IBRA and *not* sold. Location and intra-unit complementarities may suggest some modifications in this rule to identify the two-thirds

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<sup>33</sup> This section is based on the author's own experience working in Indonesia for the World Bank and on more recent investigations by WWF.

<sup>34</sup> There was illicit log export and a pattern of conversion of degraded forest areas to palm-oil plantation that added to the threats to forest sustainability. The extensive fires of 1997-98 are assumed to have been set to aid this conversion process, and got out of hand due to the drought. They have added to the forest degradation.

## Do we Need a Double Standard?

of production capacity that would maximize asset recovery while not allowing total production capacity to exceed sustainable forest yields.

56. Note that this is a sectoral approach to the application of the environmental double standard, *ex post*. However, there is nothing to prevent a government or the financial sector from doing similar analysis *ex ante*. In fact it would be a good thing, given the number of cases of excess capacity that have plagued many sectors and their financiers.

57. IBRA and the Indonesian government should take advantage of this opportunity to put its forest operations back on an environmentally sustainable basis. Appropriate forest management and enforcement programs would have to be put in place as well to assure that the timber use operations continued on a sustainable basis and that good forest management practices were adhered to. Better management could increase sustainable yields and would be an incentive to use such practices.

58. Would this action reduce the financial return captured by the government? In the short term, there may be some reduction in payment for assets and in exports, but this is not necessarily a loss to the government. The bulk of the benefits of excessive timbering accrued in the past to a very small, wealthy elite that was part of the ruling group under the old regime. There is a strong possibility that they will come back and resume control of the industry. Maximizing the benefits to this group will not help the country nor the people. If the proposed program were implemented in a credible manner, the value of the remaining assets to be sold would increase as there would be less competition and less product on the market, raising prices. It is difficult to estimate the added incomes to people dependent on standing forests and reduced costs, but they would be substantial. And there would be increased potential profits from eco-tourism.

59. There would also be important social and distributional implications. Reducing the exploitation of the forests, allowing other income producing activities, and returning more control to the people will have much wider benefits and help where the need is greatest. The shift to sustainable forest practices would also reduce the social unrest resulting from the unconstrained timbering that had occurred earlier. The need for extensive security may also be reduced, which would be a large saving to the government. The longer-term benefits of preserving Indonesia's remaining forest reserves may be incalculable, not only for that nation, but for the world as a whole. But opportunity and risk analysis suggest that the return on reduced exploitation could be very large.

60. Applying the environmental double standard will be very difficult in such a situation. The local elite will not appreciate the loss of some valuable (in the short term) assets. The financial community, who want to increase their debt repayments, will not appreciate any measure that may reduce their returns in the short term. The government will have to institute policies against the powerful vested interests.

61. The government will need support for such an approach from other sources. In addition to the environmental groups, who are committed to preserving sustainable forests, the international financial community should recognize the value of the environmental double standard and accept the decision to reduce capacity to sustainable

## Do we Need a Double Standard?

levels. Their long-term interests will be enhanced by more sustainable development policies in countries like Indonesia, which have strong long-term growth potential.

62. Developed country governments and international agencies, who have contributed immensely to assisting Indonesia's financial recovery, should also help restore its environmental sustainability. These donors should accept softer debt repayment terms and make direct contributions to assist implementing a sustainability program for the forests, recognizing that there are global public good benefits from these actions. Such priorities are similar to the justification under the Global Environmental Facility for incremental funding provided by the international community through grants.

63. This case is somewhat unique in that a government agency has the responsibility for restructuring an entire extractive industry due to the financial crisis. In that capacity, it could directly apply the environmental double standard to the selection of the units to survive as a function of sustainable yields. It would be harder to apply this criteria in an ongoing investment situation, but possible. In Indonesia, as in most other countries, the bulk of the forest resources are licensed by the government to the timber industry. Thus governments can control the rate of exploitation through the licensing process. The same process can be used to limit the creation of processing capacity to what is consistent with sustainable yields.

64. The temptations of corruption are also hard to resist where large gains are to be made by private individuals from exploiting public resources. International pressure and incentives can help offset some of this temptation. The values to the public at large in Indonesia need to be made clear. Where this is done, there will be support for more sustainable approaches. In the end, concerted public pressure to apply sustainability standards will be important. The more widely the double standard becomes accepted, the greater its impact can be.

65. This example demonstrates several features of the environmental double standard. First, it can be applied in times of financial crisis to rectify past errors, if the government is committed. Second, it can be applied on a sectoral basis where broad sustainability indicators can be estimated for use of a common resource by a number of individual exploiters. And third, it can take into account alternative uses and option values.

66. *The Antimina Copper Mine in Peru:*<sup>35</sup> In 1998, Antimina, a mining consortium of companies from several developed countries began to develop what will be one of the world's largest copper (and other metal) mines. The site is located on the eastern side of the Andes, and the ore was to be shipped by road over the Andes to a port on the Pacific. The initial plans called for the ore road to go through the Huayhuash National Park over a pass 17,500 feet high. The area is an International Biosphere Reserve and World Heritage site as well as a National Park, and the proposed road would have disrupted the habitat of several endangered species.

67. The mining company had permission from the highest levels of government to proceed and claimed to have done an environmental assessment to World Bank standards. Local officials and civil society groups opposed to the road through the park,

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<sup>35</sup> This section is based on the experience of The Mountain Institute in its Peru activities, as reported by its President and CEO, Jane Pratt

## Do we Need a Double Standard?

but they had no recourse because of the high level of government support. The proposed road traversed areas where The Mountain Institute (TMI, an international NGO) supported projects in collaboration with the Park authorities and local communities. It also tried to convince the company to use alternatives to the route through the park during the public comment period.

68. TMI, based on its experience in mountains, suggested to Antimina that running heavy trucks over the 17,500 foot pass would entail high maintenance and fuel costs and risk disruption if any of the trucks broke down on the narrow road, since departures were scheduled at four-minute intervals around the clock. An alternate routing around the park that was 17 km longer but stayed below 10,000 feet, or a slurry pipeline were proposed as more cost effective in the long term. Both were initially rejected as too costly or time consuming. The company also emphasized that its environmental assessment covered all those concerns adequately.<sup>36</sup>

69. TMI then arranged a meeting with the financial group backing the mine – major investment banks from the United States, Canada, Japan, and Germany. TMI stressed its interest in constructive dialogue to make sure that the local environment and interests were respected, while recognizing the importance of mining development for employment and income generation. TMI was a technical and field-based conservation and development organization, not an advocacy group, and it would not lead public opposition to the mine. However, TMI pointed out that implementing the plan for a road through the park would result in the park's being placed on the "Endangered Parks" list. Other NGOs, once they learned of the threat to the protected areas, would protest strongly in the countries of the headquarters of the financial institutions.

70. In the end, this would delay, but probably not stop the project. The delay, however, would activate penalty clauses in the mining company's contract with the government, the penalties would be substantial. This new perspective led the consortium to rethink its plans and to reroute the road around the park. It eventually opted for the slurry pipeline around the park. In the long term, this choice proved financially preferable once the calculations were refined. The company, however, had wasted \$1 million on an EIA for a road that proved both financially and environmentally undesirable.

71. This is a case where the financial institutions should have applied the environmental double standard from the beginning. Mines are always a potential threat to the environment and high-risk, long-term investments. There are many cases where the environmental damage locally and often far downstream has been substantial and costly to the investors. In this case, application of the environmental standard from the beginning would have saved the mining company several million dollars in the initial development work and eased relations with the local inhabitants (which remain tense over a number of other social and environmental concerns). The criterion to respect local biodiversity and sustainable land use would have required that the ore shipments go

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<sup>36</sup> In fact, the EA was not up to World Bank standards as claimed. It had been commissioned by Antimina to justify the project. It happens that the head of TMI had previously headed the Bank's environmental strategy unit and designed the EA process and knew exactly what would have constituted an acceptable EA.

## Do we Need a Double Standard?

around the national park. In this case, that turned out to be the preferred option in the long run. Even if it had been more expensive, that should have been required by the financial backers of the project to meet the sustainability standard.

72. Such a requirement would have avoided putting the company in a situation where it had to meet unrealistic financial performance expectations, when a realistic assessment would have generated a more than satisfactory yield. In this case, it would clearly be desirable for similar requirements to be applied to the entire sector in Peru ( and elsewhere). Antimina is one of the more environmentally responsible mining firms in the region, and is facing competition from others whose environmental consciousness is far weaker. Requiring application of the environmental double standard would place all mines on an equal footing, to the long-term benefit of the country, its people, the mines' financial backers.

73. This example demonstrates several important aspects of the double standard. First, financial backers of major projects can and should take sustainability factors into consideration for both their own reputational interests and their long-term financial benefit. Second, the environmental standard may lead to superior solutions from a financial point of view as well, if the project is analyzed in a holistic manner. And third, it is important for financial investors to have access to independent information when applying the environmental sustainability standard, either from reliable third parties or from internally developed capacity, as they do for financial analysis.

### **VII. Conclusions**

74. The Asian Financial Crisis not only highlighted faults in the international financial system, it also underlined the importance of looking at broader criteria for major investment flows. Reforms in the financial sector alone, and the extent of reform actually being put in place, are quite modest so far, and will not be sufficient to assure true sustainability of our economic systems. In addition, there are serious threats that come from lack of environmental sustainability that have repercussions on the financial sector and the economy as a whole.

75. Conventional financial or economic analyses do not take into account many environmental factors that impinge on the economic and financial value of projects, or whole programs of activity. Commendable work has been able to reflect some of these values into economic analysis, but in the end, many simply cannot be included in the format of financial analysis.

76. This calls for the adoption of a parallel standard for investment that assures environmental sustainability, what we call the 'environmental double standard.' Investors should make sure that their investments satisfy the basic sustainability criteria set out above – no reduction in air and water quality, no adverse affect on areas of significant biodiversity, no degradation of natural resources, and some improvement in at least one area. Adopting this double standard will require a joint effort by a large part of the investor community with strong public support, and it will need further refinement overtime as more experience is gained and more investors and scientists become part of the effort to collaborate on enhancing environmental sustainability, rather than the too frequent confrontations we now see..

## Do we Need a Double Standard?

77. The benefits will be substantial in improving the sustainability of our financial and economic systems in the long run, and most important in assuring continued improvements in the quality of life of the world's citizens. As the examples demonstrated, this need not be a large cost to the investors or impairment of economic efficiency. More comprehensive project design and evaluation will have positive benefits across the board.

78. The next steps will be to formalize the environmental double standard into more operational formats and enlist some major investment banks to begin using the criteria to demonstrate their commitment to the overall sustainability of the system.