ENVIRONMENTAL RISK MANAGEMENT BY FINANCIAL INSTITUTIONS

CHAPTER ONE: INTRODUCTION

1.1 The Environmental Issue

In recent years, the adoption of environmental risk management techniques and procedures has become an important item for financial institutions, driven on the one hand by an increasing awareness of environmental issues among customers and shareholders, and on the other hand by ever more strict liability legislation as a result of pressure from society.

Investors and companies have become more and more conscious of the many ways that environmental issues affect their businesses, presenting not only challenges but also opportunities. Environmental issues generate business risks that have to be carefully handled. Regulations related to businesses and the environment constantly improve and almost often create uncertainties for companies bringing significant implications for their financial performance. Consumer's reactions and other environmentally motivated actions create serious non-regulatory risks that may reduce a company's markets or affects its financial strength.

On the other hand, significant rewards are increasingly available to companies that are able to transform environmental concern into opportunity or competitive advantage. Some companies have recognized new demands for "green" products and developed new niches in the market of good and services. Some companies have been finding their reputation enhanced and their earnings increased by adopting cleaner production techniques and keeping environmentally adequate facilities. Companies have even made a changing regulatory framework into a source of competitive advantage by voluntarily going beyond compliance, knowing that rivals will likely be compelled to react later.

In many different ways, the environment is directly affecting the bottom line, often with very different consequences for companies even within the same sector. In many industries, environmental issues have implications that can significantly affect companies' financial results.

The focus of this paper, however, remains on the side of risk (not opportunities, which is, on the other hand, a good issue to be explored by financial institutions), bringing concepts, ideas, steps and other recommendations in order to avoid complete omission in this field by financial institutions, especially in Brazil.

During the time, a variety of analytical and quantitative approaches have been developed trying to relate environmental and financial performance in the USA and Western Europe. Since the focus of this paper is something more immediately applicable to brazilian financial institutions, in particular banks, the next chapters will be showing the most important basic concepts and steps to be followed in order to address the issue. Additionally some approaches are impossible to be applied due to lack of available information in the financial system. Any way, the evolution of approaches can be summarized as follows:

Common approaches – They measure a company's environmental performance through a set of performance indicators and checklists. Indicators are selected largely because comparable data are available for many companies from public data sources (in case of USA). These performance indicators are sometimes supplemented by measures of the quality environmental management, such as adherence to international standards organization (ISO certificate series) and others.

Rating approach – Environmental rating system from the indicators described above, analogous to Standard & Poor's (S&P) or Moody's financial ratings, is constructed under this approach. This approach weights the various indicators through a regression analysis correlating the environmental performance and management indicators to returns to stocks of companies included in the S&P500. The, companies are ranked into categories (e.g. AAA) based on their aggregate scores.

"Correlation and regression" approach – It attempts to establish a linkage between environmental and financial performance through correlation and regression analysis. A number of such studies appear in the literature from 1.992.

"Events" approach – It uses "event studies" to show that new information regarding environmental performance or liability affects a company's stock price. It can be found in studies developed by Konar and Cohen (1997) and Hamilton (1995).

"Market Value" approach – The most modern approach on the other hand tries to identify the impact of impending environmental issues in the company's market value. Based on different scenarios, under this approach, some simulations are built in order to quantity the financial result in the company's market value if some measures or changes, likely to happen, really occur.

Considering the Brazil's reality, where few banks have consistent concerns with the environmental issue and only one commercial bank has developed and disclosed a specific Environmental Policy, this paper will follow a more basic approach, predicted on steps for a analytical evaluation.

1.2 The Beginning of the Concerns

When the 20th century began, the world population was about 1.6 billion people. Although pollution and environmental degradation were common, the problems were local. The World as a whole seemed vast, with huge regions virtually untouched by its human inhabitants.

By mid-century, airplanes and radio broadcasts had begun to shrink distances and bring the communities of the World into greater contact. Industrial growth had multiplied consumption of natural resources as well as pollution of the environment in many countries, specially those leaders of industrial revolution. As the mentioned growth continued, air and water pollution became more widespread, as did concern about the cumulative impact of toxic industrial products on living species.

As the 1990s begun, World population has more than doubled since 1950 and World economic activity has almost quadrupled. To local concerns about environmental degradation global worries have been added giving room for many treaties about environmental questions. The pressures of agricultural and industrial development have begun affect and extinguish other species in a rapid rate, and visibly impacting the quality of the planet’s soils, forests, oceans, and atmosphere. These pressures can, however, continuously increase if the human population doubles again and economic activity continues its explosive growth, without any measure in order to protect the environment.

On the other hand, we now live in a more peaceful and cooperative World, with governments that are more responsive to their citizens and capable of redirecting resources to deal with environmental problems and assist the development process, widespread public concern and growing knowledge about the environment. As a result, the environmental regulations around the World has become more and more strict, impacting not only business but also social and financial activities. The growing role of nongovernmental organizations and of grass-roots participation in environmental issues is also an important aspect the modern society.

Once businesses as a whole have been "suffering" the consequences of these new trends, financial institutions in developed countries, since early 90's, have been trying to identify, quantify and manage environmental risk resulting from this new era. So, nowadays it is possible to find a bunch of financial institutions, mainly investment banks and long-term credit institutions, applying modern techniques to handle environmental risk. For example, some banks in the United States have special structures in the highest level of the organization to deal with both, environmental risk and environmental products.

1.3 Experience of environmental risk in financial institutions around the world

As a result of the described changes, environmental risk is now an important issue for financial institutions Worldwide. The international survey carried out by EBRD-European Bank for Reconstruction and Development in 1993 provides evidence of the extent to which environmental risks have affected banking practices throughout the U.S., western Europe and southeast Asia. The survey incorporated the experiences of 56 lenders from 7 countries and found out that:

- Over one-third of the banks stated the they had experienced significant losses resulting directly or indirectly from environmental risks. This number included all the participating US banks and a very high proportion of Banks in Germany and the UK;
- The most common sources of loss were defaulted loans, written off in preference to exercising rights over collateral which could have exposed lenders to the costs of undertaking remedial works.
- Large numbers of financial institutions also reported losses arising from remedial works undertaken by the lender after foreclosure and from loans

which defaulted as a result of environmental upgrading or costs for remedial works incurred by the borrower.

- Smaller but significant numbers of banks testified to reduced share values and dividend payments, resulting from environmental violations or costs incurred by customers, together with increased volatility of share prices as a result of increased environmental risk across their equity portfolios.

Another survey sponsored by UNEP-United Nations Environment Programme, Global Survey on Environmental Policies and Practices of the Financial Services Industry (summer 1994), identified similar trends with respect to the environmental credit risks and loss exposure of many financial institutions.

Financial institutions in central and eastern European countries and former Soviet Union countries report two phenomena occurring when nations embark on governmental reform. They have experienced consequences of environmental risk in only a few cases. However, two key factors could be a future concern:

- Regulation and enforcement – Environmental legislation in central and eastern Europe is often weak or poorly enforced. However, current attempts are harmonizing environmental legislation with equivalent legislation in western Europe. Progress towards harmonization of environmental legislation is most rapid in the some countries of central Europe (Poland, Hungary, The Czech Republic and Slovakia), which have signed association agreements with the European Union. This harmonization of environmental legislation has focused on contamination (environmental emissions and effluents standards). In the long term, it may extend to the introduction of wider legislation to be discussed for financial institutions in European Union member states. In general, the closer that environmental legislation in emerging nations moves towards equivalent westerns European legislation, the more exposed their financial institutions will become to all forms of environmental risk.
- Privatization and private property restitution – Uncertainty surrounding the privatization and private restitution processes in central and eastern Europe

has hidden environmental responsibilities. This has been most pronounced where major polluting enterprises have wholly or partly in state ownership, creating a conflict of interest within the state. As a result, regulatory agencies fail to enforce against state owned enterprises. As privatization and property restitution progress, environmental responsibilities will become more sharply focused and as a result enforcement is likely to become more commonplace. So, changes like these can imply that financial institutions in emerging nations may become increasingly exposed to environmental risk.

Unfortunately, by this time it is not finished yet a relevant survey that is still being made by a non-governmental organization in Brazil, whose aim is to disclose in detail the practices of environmental management risk in Brazilian bank system.

CHAPTER TWO: MAIN INICIATIVES AND ORGANIZATIONS

2.1 UNEP-United Nations Environment Programme

UNEP was established in 1972 as the leading United Nations body for the environment including financial field. Its mandate is to promote effective action and to ensure that environmental interests are heard in international policy-making circles. In addition UNEP has helped in some of the most important global treaties involving environmental issues. Today, UNEP provides the secretariats for the following agreements:

? Washington Convention on International Trade in Endangered Species (1973);

? Vienna Convention on the Protection of the Ozone Layer (1979) and its Montreal Protocol on Substances That Deplete the Ozone Layer (1985);

? Bonn Convention on Migratory Species (1979);

? Basel Convention on Transboundary Movements of Hazardous Wastes and Their Disposal (1989) and its Protocol on Liability and Compensation (1999);
? Convention on Biological Diversity (1992) and its Cartagena Protocol on Biosafety (2000);
? Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) (joint secretariat with the UN's Food and Agriculture Organization);
? Intergovernmental Negotiating Committee for a treaty on persistent organic pollutants (POPs).

Additionally, UNEP has been bringing together financial institutions around the world by promoting an annual roundtable meeting to discuss environmental issues that affects financial institutions, including commercial banks, investment banks, insurance companies and others. These meetings take place in a specific country and are attended by more than 200 different financial institutions.

The last one took place in Frankfurt, Germany, and the next one will take place in Rio de Janeiro, Brazil. The agenda always includes strategic discussions about the challenges and opportunities for the financial market related to sustainable development. It also works as a forum where financial institutions can share different views about the issue and interchange experiences in order to improve the financial sector's role in this regard.

Below is reproduced The "UNEP Statement by Banks on Environment and Sustainable Development", signed by 55 institutions (at the beginning):

> *"We, the undersigned, believe that human welfare, environmental protection and sustainable development depend on the commitment of government, businesses and individuals. We recognize that the pursuit of economic growth and a healthy environmental are inextricably linked. We*

further recognize that ecological protection and sustainable development are collective responsibilities and must rank among the highest priorities of all business activities, including banking. We will endeavor to ensure that our policies and business actions promote sustainable development: meeting the needs of the present without compromising those of the future.

General Principles of Sustainable Development:

- *We believe that all countries should work towards common environmental goals.*
- *We regard sustainable development as s fundamental aspect of sound business management.*
- *We believe that progress towards sustainable development can best be achieved by working within the framework of market mechanisms to promote environmental protection. We believe that there is a role for governments to provide the right signals to individuals and businesses, to promote behavioural changes in favour of effective environmental management through the conservation of energy and natural resources, whilst promoting economic growth.*
- *We regard a versatile, dynamic financial services sector as an important contributor towards sustainable development.*
- *We recognize that sustainable development is a corporate commitment and a integral part of our pursuit of good corporate citizenship. We are moving towards the integration of environmental considerations into internal banking operations and business decisions in a manner which enhances sustainable development.*

Environmental Management and Banks

- *We subscribe to the precautionary approach to environmental management, which strives to anticipate and prevent potential environmental degradation.*

- *We expect, as part of our normal business practices, that our customers comply with all applicable local, national and international environmental regulations. Beyond compliance, we regard sound environmental practices as one of the key factors demonstrating effective corporate management.*
- *We recognize that environmental risks should be part of the normal checklist of risk assessment and management. As part of our credit risk assessment, we recommend, when appropriate, environmental impact assessments.*
- *We will, in our domestic and international operations, endeavor to apply the same standards of environmental risk assessment.*
- *We look in public institutions to conduct appropriate, up-to-date and comprehensive environmental assessments in ventures with them, and to share the results of those assessments with participating banks.*
- *We intend to update our management practices, including accounting, marketing, risk assessment, public affairs, employee communications and training, to incorporate relevant developments in environmental management. We encourage banking research in these and related issues.*
- *We will seek to ensure that in our internal operations we pursue the best practices in environmental management, including energy efficiency, recycling and waste minimization. We will seek to form business relations with suppliers and sub-contractors who follow similarly high environmental standards.*
- *We support and will develop suitable banking products and services designed to promote environmental protection, where there is a sound business rationale.*
- *We recognize the need to conduct internal environmental reviews on a periodic basis to measure our operational activities against our environmental goals.*

Public Awareness and Communication

- *We will share information with customers, as appropriate, so that they may strengthen their own capacity to reduce environmental risk, and promote sustainable development.*
- *We will foster openness and dialogue relating to environmental management with all relevant audiences, including governments, clients, employees, shareholders and the public.*
- *We recommend that banks develop and publish a statement of their environmental policy and periodically report on its implementation.*
- *We ask the United Nations Environment Programme to assist the industry by providing, within its capacity, relevant information relating to sustainable development.*
- *We will periodically review the success in implementing this statement and will revise it as appropriate.*
- *We encourage other banks to support this statement."*

2.3 World Bank

World Bank has special concerns about environmental questions, but probably the most effective way they have been dealing in this field in the financial world is through the IFC-International Finance Corporation. This is the World Bank's body to finance the private sector either directly or through another financial institution. It's important to point out that IFC has strict rules to deal with environmental questions during the evaluation of credit applied for an investment project becoming a model for financial institutions around the World.

For example, IFC requires environmental assessment (EA) of projects proposed for IFC financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence, examines project alternatives, identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts, and also includes the process of mitigating and managing adverse environmental impacts throughout project implementation.

IFC classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts, as follows:

- **Category A:** A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works;
- **Category B:** A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas — including wetlands, forests, grasslands, and other natural habitats — are less adverse than those of Category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigatory measures can be designed more readily than for Category A projects;
- **Category C:** A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project;
- **Category FI:** A proposed project is classified as Category FI if it involves investment of IFC funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

Beyond that, IFC takes many other measures after the assessment process, decision making and implementation process to assure that environmental risk are being well managed during the whole term of the credit.

Finally, IFC also promotes, with non-profit orientation, seminaries for customers and members of financial community around the World to share concepts, procedures and experiences about risk management, playing also an important role as an educator.

2.3 NGO-Non-Governmental Organizations

Non-governmental organizations play a vital role in the shaping and implementation of participatory democracy. Their credibility lies in the responsible and constructive role they play in society. Formal and informal organizations, as well as grass-roots movements, should be recognized as partners in the implementation of many changes in our nowadays society, including changes in financial community's behavior.

The nature of the independent role played by non-governmental organizations within a society calls for real participation. Therefore, independence is a major attribute of non-governmental organizations and is the precondition of real participation.

One of the major challenges facing the world community as it seeks to replace unsustainable development patterns with environmentally sound and sustainable development is the need to activate a sense of common purpose on behalf of all sectors of society.

Nowadays there are lots of non-governmental organizations of particular importance for the implementation and review of environmentally sound and socially responsible sustainable development. The community of non-governmental organizations offer a global network, shrinking distances and covering a large spectrum. So, we can find organizations dedicated in endangered species protection as well as in promotion of linkage between sustainable projects in developing countries to capitalized investors in developed countries.

CHAPTER THREE: ENVIRONMENTAL RISK

3.1 Concept

Risk is commonly defined as the possibility of meeting danger or of suffering harm or loss. More academically we could state that risk is the potentialities that stand between the ambitions and goals of an individual or organization and those goals actually being realized. There are risks that can help achieve goals, and risks that can frustrate achievement of goals. However, risks are generally taken so as to achieve some advantage.

To understand and place a dimension on risks, it is necessary to understand "what" and "how" something might happen but also the likelihood of something happening (probability) and the effects if it did (consequences). Almost all banking transactions involve risk and the financial institutions' ability in identifying and quantifying the different levels of risk is the key to separate good decisions from bad ones.

Environmental risk is, therefore, one of several kinds of risks that financial institutions must take into account when assessing new lending or investment opportunities. They have to and are increasingly focusing on environmental risk and implementing policies and procedures to mitigate it. The general aim is to focus upon environmental issues associated with lending investments and thus to increase the opportunities for environmentally acceptable or sustainable development and to minimize exposure to environmental or financial risks. The specific objectives of environmental risk management policies and procedures should then be:

- Identify and asses the environmental impacts and issues associated with loans and investments;
- Identify and evaluate the financial implications related to environmental issues;
- Aid the credit or investment appraisal process.

Environmental risk simply defines the risks to the financial institution and its transaction that result from conditions relating to the environment.

From a bank's point of view, environmental risk can be characterized in three ways:

1. **Direct Risk:** This can occur when a bank exercises operational control over a business or in some cases where a bank takes possession of contaminated land for example held as security for a loan. In such cases, the bank may not only lose its original advance, but it may also be forced to meet substantial clean-up costs. The two strongest indicators of liability for environmental damages are whether the lender has become an owner of the contaminated site, such as through foreclosure, or an operator, for example by taking over operations of the borrower or having other influence over day-to-day operations of the borrower.

2. **Indirect Risk:** It is the risk incurred by financial institutions due to borrower's inability to repay a loan because of environmental issues. As countries tighten their environmental regulations and public interest groups grow, pressure increases on business to minimize their environmental impacts. This may increase companies' capital and operating costs in order to comply with environmental regulations. So, this can have effects on cash-flow and consequently in the borrower's ability to repay. Where borrowers do not comply with environmental regulations, they face fines, liability for clean-up costs and even temporary or definitive business closure. It is very important,

therefore, to assess environmental performance and management as part of the normal credit evaluation process. The indirect risk is sometimes also described as Enhanced Credit Risk, in the extent it may increase the credit risk a Financial Institution takes in a credit transaction.

3. **Reputation Risk:** This is the risk associated with financial institutions' image to the public in general due to environmental questions. Needless to say that reputation and image stay within the most important "assets" of a financial institution. Banks face increasing scrutiny-lending policies from government, regulators, NGOs and the media. It is important to demonstrate that the bank acts responsibly at all times and this is particularly important when providing finance for major projects. Failure in careful considering environmental impacts arising from a borrower's operations can result in negative publicity for both, the customer and the bank. Reputation risk is present in almost all bank transactions, affects the entire organization and requires all personnel to exercise particular attention in dealing with customers and the community. Financial institutions, which actively associate their names with products and services, are more likely to have higher reputation risk exposure. As vulnerability to public reaction increases, the ability to offer competitive products and services may be affected. Financial institution's reputation can be damaged if it is perceived as engaging in irresponsible business practices or investing in projects that do not adequately address the environmental issues. Thus, the more responsibility the institution exercises, the less reputation risk it will face.

Virtually all forms of credit corporate transactions undertaken by financial institutions occur within the context of environmental concerns. Notwithstanding, financial institutions explicitly recognize that some forms of transaction are inherently more exposed to credit risk than others. Typical responses may include increasing the level of risk assessment procedures before lending or adjusting credit terms or security requirements.

Clearly, the main determinant of environmental risk is the nature of a borrower's business activity and previous activities carried out on the borrower's site or any sites offered as collateral. However, all other things being equal, environmental risks also vary according to different forms of transactions. For example, the associated environmental risk to a short-term credit for a retail company is considerably shorter than a long-term credit to support the construction of a huge petrochemical plant.

3.2 Sources of Environmental Risk

3.2.1 Environmental Laws and Regulations

Both, direct and indirect environmental risks are all in large part a result of environmental regulation. In the case of indirect risk, environmental regulations can determine levels of permitted emissions and effluents as well as the enforcement actions intended to discourage companies from exceeding these levels. It can also impose and recover damages when companies do so.

Enforcement actions may take a number of forms and the most common ways the governments react include:

- Punitive fines or charges;
- The revocation of operating permits or licenses;
- Administrative orders or injunctions requiring a cessation of polluting activities;
- Remedial actions designed to restore polluted property to its former condition.

In the case of goods received in guarantee, environmental regulation and enforcement play an important role in determining the value held in collateral. Real property or other forms of guaranty subject to environmental violations or enforcement actions generally lose relevant part of its value as a result.

Direct liability risk is a direct product of regulatory intervention when regulations or directives or associated common law judgements explicitly state such risks and penalties.

3.2.2 Public Opposition

Environmental risk may also arise as a result of public opposition against projects viewed as to have a significant adverse effect on living and working conditions in their localities. Public opposition may stop projects going ahead or may significantly delay their implementation. In this case, actions required to overcome public opposition may impose new and in some cases tremendous costs, with significant affects on the project's rate of return.

Regulations allowing for public information and participation in projects may also cause risk, as failure to conform to such requirements can result in fines, penalties or even revocation of the right to continue with the project implementation. Particularly sensitive projects (involving construction of huge dams, for example) may require efforts to ensure that, while compliance is adequate, public relations are sufficient to permit conclusion without unexpected reactions and consequent delays.

3.2.3 Customer Supply-Chain Standards

Environmental risk may also arise through customer supply-chains, since a customer who produces at an early stage in a supply chain is expose to changes in the market for the end-product. For example, falling car sales will surely affect manufacturers of auto-parts and tires in the same way.

The transmission of business risks in supply-chains also applies to environmental risks. Therefore, a customer who produces at an early stage in a supply-chain may be vulnerable to the consequences of environmental violations committed by other suppliers or final producers in any part of that supply-chain. For example, a customer that supplies a final producer faced with a large expense for remedial work may incur in huge losses as a result of that final producer's diminished ability to pay for goods supplied. On the same way, the manufacturer of tires and auto-parts may experience delays if the car producer is obliged to divert funds to face cleanup costs and fines. Similarly, a customer at the end of the supply-chain faced with a supplier that goes out of business as a result of an environmental injunction may have to find an alternative source of supply, and possibly pay a higher price for supplies or accept more restrictive or onerous credit terms. In this case, the car producer face expensive problems in the tire manufacturer go out of business due to cleanup costs and fines.

It is also important to highlight that exporters are especially vulnerable to changes in the supply chain in importing countries. Foreign regulations can sometimes sweep out suppliers in other countries because of new environmental standards.

Environmental risk for lenders is generally greater when borrowers are highly dependent on a small number of suppliers and/or final producers in their market. On the contrary, risk is lower where their base of suppliers and final producers is diversified.

3.2.4 End Consumer Preferences

Changing end consumer preferences in favor of more environmentally friendly products and services may also increase environmental risk. The risk will be greater if end consumers consider a product as being environmentally sensitive and if alternative products have a better environmental image. Similarly, the risk related to collateral (decreasing in value) will increase in case those assets are stigmatized by a poor environmental image.

CHAPTER FOUR: ENVIRONMENTAL RISK MANAGEMENT

4.1 Concept of Environmental Risk Management

Academically, risk management has been described as the steps a organization has to follow in order to make the future sufficiently certain. In other words, it is the proactive rational process that will allow “losses” to be contained under expected and acceptable limits.

The effective test of good risk management is whether the measures taken will protect achievement of goals within the accepted tolerance of risk and if they are achieved in the most efficient way, i.e. with the lowest cost.

Environmental risk management is then the process by which financial institutions identify, appraise, control, transfer and monitor environmental risks. Environmental risk management may be applied to both individual credit transactions and to aggregate loan and investment portfolios. It minimizes exposure to foreseeable environmental risks, while at the same time providing adequate protection against unforeseeable risks. Properly undertaken, environmental risk management can therefore help reduce the amount of non-performing assets and therefore improve a financial institution’s performance.

These procedures include investigation techniques such as due diligence, appraisal techniques, control techniques such as legal covenants and loan agreements, transfers techniques such as risk finance products, routine risk monitoring techniques and specific procedures designed to protect assets during workout and foreclosure operations. Many of these procedures have direct parallels in environmental risk management. Frequently a financial institution can develop environmental risk management procedures by building on procedures, which already exit, thus avoiding duplication of effort. At the same time, integrating environmental risk management procedures into existing credit appraisal procedures will help to ensure that environmental risks are properly weighted alongside other sources of risk and become part of a financial institutions' dominant "credit culture".

Still, environmental risk management frequently requires financial institutions to develop new skills and work-practices. In the case of environmental due diligence, high levels of technical environmental expertise sometimes require institutions to source assistance from external consultants. In many others areas, however, financial institutions can achieve high standards of practice by means of in-house training programs.

4.2 Applications of Risk Management

Virtually all transactions that involve environmental risk are subject to environmental risk management. In practice, however, the financial institution has to weigh the level of environmental risk within individual transactions against the costs of managing that risk and the likely consequences of failing to manage it. Thus many financial institutions should apply environmental risk management techniques and procedures selectively, distinguishing between transactions according to a range of criteria including size, type and duration of the proposed credit term and others.

4.3 Steps of Environmental Risk Management

Putting aside the approaches mentioned in the introductory chapter, which require some sort of detailed information not available worldwide, specially in Brazil, we can now focus on basic practical steps to be followed by financial institutions in order to develop an effective environmental risk management system. These steps can also be considered as a way to create and consolidate an environmental risk management culture within the organization, as a basis for more sophisticated procedures to be implement when and appropriate.

So, the main building blocks of successful environmental risk management are techniques and procedures designed to ensure that financial institutions manage environmental risks in a systematic and effective way, while at the same time minimizing overhead and transaction costs which could have a bad effect on competitive position and business performance.

As in the case of credit risk management more widely, environmental risk management does not constitute an “exact science” and frequently requires credit officers to make judgments on the nature and magnitude of environmental risks which can not be measured objectively. Similarly, environmental risk management can not eradicate environmental risks altogether but can help to minimize exposure to indirect and direct risks, thus reducing potential losses.

Environmental risk management and procedures can be separated into major categories, each one with its specified steps, as follows:

- Environmental Risk Identification:
  - Environmental Screening;
  - Environmental Investigation;
- Environmental Risk Management Strategies:
  - Appraising Environmental Business Risks;
  - Transferring Risk;
  - Monitoring Environmental Risks;

4.3.1 Environmental screening

This is the process by which financial institutions assess whether the level of environmental risk associated with particular transactions is sufficient to justify more rigorous investigative techniques. It is the first and probably the most important stage of environmental risk identification. It is the simple filter mechanism by which financial institutions decide which transactions should be subject to environmental investigations (the next step).

A common toll in this stage is the sector checklist, which classifies specific industries or activities as representing high, medium or low environmental impact. Once a company or project matches with the list of risky activities, deeper should be the analysis. In this stage, mandatory EIA (Environmental Impact Assessment) can also be identified.

Environmental screening is undertaken solely on the basis of readily available information, collected in the normal course of business, and is, therefore, relatively non-intrusive and inexpensive. In most cases, a financial institution's front line staff (for example relationship managers, credit officers and risk analysts), can conduct environmental screening without the need of specialized help.

4.3.2 Environmental Investigations

Only customers that have been negatively screened should be subject to this step, which seek to identify potential sources of risk and liability, and then to confirm or reject these findings using rigorous investigative techniques.

Environmental investigations can serve to identify liabilities that companies are subject, for example because of site contamination, and/or to reassure that the customers' ongoing business operation is complying with existing environmental laws and regulations (compliance).

Environmental investigations, including due diligence techniques, can also determine whether the customer has developed policies, procedures and technologies to improve environmental efficiency and anticipate future legislative changes as well can identify market pressures to improve environmental performance.

Environmental investigations take the customer through a series of stages to confirm or reject potential sources of risk and liability. With each new stage, the financial institution gains more in-depth information on the customers' position, in terms of site conditions and/or regulatory compliance. Briefly, the three stages are:

1. Customers Information Disclosure: Seeking initial responses from the customer to an environmental questionnaire, based on existing knowledge and readily available information, the financial institution may identify relevant environmental legislation that pertains to the customers' activities and also contact regulatory authorities to check the regulatory history of the customer and its facilities, in terms of permits, filings, violations, proceeding, registrations, conduct of EIAs (Environment Impact Assessment), etc.
   The purpose of this stage is to form an initial, low cost view of the customers' site usage and regulatory compliance, based largely on the customers' own knowledge, data and representations, to establish whether risks and liabilities exist. This stage may also include an initial, internal desk review of regulatory sources, to identify and/or confirm the main legislative instruments affecting the customers and the customers' compliance track record. This review provides greater confidence on the validity of the customers' responses.

2. Inspections of Sites and Facilities: The purpose of this stage is to gain first-hand visual and oral evidence of the customers' environmental activities, by visiting and inspecting the customers' sites and operations and talking directly to a number of key personnel involved in the operation. The aim is to confirm or deny the existence of potential "red flags" according to responses to the questionnaire above mentioned or from reviewing regulatory agencies' records.

Each financial institution can determine the specifications for this stage, depending on the business activity. However, below there are some suggestions for a standard approach:

- Site visit and surface inspection, including adjacent properties, if appropriate;
- Review of permits and licenses;
- Interviews with key site personnel, owners and operators;
- A review of public and private records of the local physical environment;
- Geographic studies;
- Identification of worker health issues.

If red flags are still apparent after inspection, then the financial institution may wish to physically sample and analyze site contamination or emissions or discharges that may be above legal limits (next stage).

3. Physical Sampling and Analysis: Using physical or intrusive sampling and laboratory analysis, this stage confirms or denies that actual existence and location of any site contamination or other pollution, and, possibly, quantifies levels of emissions and discharges, for comparison with the limits imposed by environmental law and regulations.

   The aims are to establish the existence, location and degree of any site contamination or other pollution, and, having quantified the levels of emissions and discharges, to compare these levels with the limits imposed by environmental law and regulations. This stage is very clearly outside the scope of the normal activities of financial institutions. Thus, the sampling and analysis stage is led by environmental consultants, under the supervision of the staff of the financial institution.

   The sampling and analysis step has no single approach. Each project depends on the requirements of the financial institution, which often, in turn, come from the outcomes of the customer information disclosure and site inspection.

4.3.3 Environmental Business Risk Appraisal

Environmental business risk appraisal should focus on the impact of laws and regulations together with changing supply-chain standards, consumer preferences and public opinion on a customer's products, markets and competitive position.

Products may be affected by constraints in raw materials caused by changes in environmental regulations or higher required standards. Changes in consumer preferences could cause the company's market or competitive position to drop. Loss of public approbation can cause damage to the reputation of the companies and to the financial institution.

Many financial institutions have already incorporated some sort of business risk appraisal in their routine due diligence process for credit or other transactions. Typically, business risk appraisal includes an analysis of a customer's business markets, its competitors and competitive strengths and weaknesses, and the capabilities and experience of its management personnel. If feasible and appropriate, environmental business risk appraisal should follow these existing lines of enquiry considering the implications of environmental issues, being the focus of the analysis:

- Changing environmental laws and regulations and their implications for a business's products, markets and competitive position;
- Changing end-consumer product preferences and their implications for a business's products, markets and competitive position;
- Introduction of environmental quality standards by final producers and potential investor companies, where appropriate.
- Changes in public opinion and expanding opportunities for public participation.

It is important to remember that in some cases, regulatory change may become entire product lines obsolete, for example asbestos building materials, DDT insecticides and CFC aerosols. Customers unable to respond quickly and appropriately to regulatory change are likely to lose business as a result.

4.3.4 Environmental Risk Transfer

Risk transfer is playing an increasing role worldwide in the management of risk as a whole. The existence of such developed insurance market (as well as derivative market) has increasingly permitted environmental risk transfer. A growing range of insurance policies is becoming available in the market, covering risk for financial institutions, their clients and environmental consultants. Essentially, financial institutions can use insurance policies within a risk protection strategy in four areas:

- Requiring customers to explore policies which protect them against environmental liabilities;
- Requiring customers to take out environmental liability policies which name the financial institution as beneficiary;
- Taking out first party policies that transfer the environmental risk of the financial institutions' entire portfolio to the insurers;
- Requiring that environmental consultants have professional indemnity insurance coverage.

A bunch of companies and insurance products available in the market offer different types of cover to both, customers and the financial institutions themselves. Some examples of insurance policies are provided below:

- Property transfer liability or environmental clean up insurance – Coverage provided for remedial works resulting from first and third-party contamination present but undetected at the time the property was purchased;

- Pollution legal liability – Coverage provided for environmental damage which originates at the insured party's site, but which migrates to an adjacent facility, causing property damage or personal injury to a third party; the policy does not cover injury or damage at the insured's own site.
- Hazardous waste transporters liability – Coverage provided for pollution caused during the transportation of hazardous waste by a third party;
- Directors' and officers' liability insurance – Coverage provided on a professional indemnity basis for directors and officers of companies facing claims arising from pollution by the company and for protection against loss of corporate and personal assets.

Despite the fact that insurance market in Brazil is not as developed as in Europe or USA, financial institutions are allowed to access these markets in order to find the best cover for a specific situation. Derivative markets are also an option to transfer not only credit but also other kind of risks, including environmental risk.

4.3.5 Monitoring Environmental risk

Environmental risk monitoring is the process of maintaining information relating to environmental risks associated with any aspect of a financial institution's current lending or investment portfolios. Monitoring is needed because:

- Environmental risk is dynamic and may change significantly during the term of a loan or investment;
- The financial institution's customers may not be able to meet changing environmental laws and regulations. Thus, both parties are exposed to new sources of risk and liability.
- Customers may violate laws and regulations, despite promises to the contrary.

Given the dynamic nature of environmental risk and its potential implications, the financial institution clearly must put in place basic monitoring procedures to identify new sources of risk at an early stage and wherever necessary review them.

Monitoring procedures may range from simple oral inquiries, through more formal types of information disclosure, to new site or plant investigations (as described in earlier stages). Indeed, in theory, the entire collection of procedures discussed previously may rise again, now for monitoring purposes during the term of loans or investments.

Environmental monitoring procedures fall into two basic categories, namely procedures for monitoring environmental risks for individual credits, and procedures for monitoring sources of environmental risk with a broader impact across entire loan and investment portfolios, that is, on multiple transactions.

Ideally, environmental monitoring should be employed:

- At prescribed intervals for all environmentally sensitive loan and investment transactions;
- On an on-going basis, for potential new sources of environmental risk which might have an impact on existing loan and investment portfolios.

The simplest form of monitoring involves reviewing the environmental implications of individual transactions through periodic routines checks. The financial institution's staff may undertake such checks periodically as part of normal credit term monitoring procedures. As with other environmental risk management techniques, financial institutions are unlikely to wish to monitor all loans and investment transactions for environmental risk. The emphasis should therefore be on the highest-risk transactions as identified during environmental screening and investigations activities.

In addition, financial institutions should also consider monitoring portfolio environmental risk. Of the two main components to this monitoring activity, the first focuses on sources of environmental risk, for example changing environmental laws and regulations and changing end-consumer preferences, and their potential impact on a loan and investment portfolio or its high risk segments. A financial institution should not become overexposed to any one or a combination of portfolios themselves to manage progress in reducing risks.

Given the importance of environmental laws and regulations as a source of environmental risk, financial institutions should keep alert on new environmental laws and regulations which may have an impact on existing customers and undermine their credit worthiness. This on-going process should include developments in all countries of operations and all countries to which their customers export. In most countries, financial institutions can obtain the basic information for this process simply by placing formal requests with relevant environmental ministries and regulatory agencies.

Similar logic applies to monitoring the implications of changing consumer preferences, including preferences of other producers in the supply chain or of end-consumers. Changed circumstances in countries that import from the financial institution's customers require monitoring as well. Also, public opinion and increased public participation can affect specific sectors of the portfolio or the portfolio as a whole.

CHAPTER FIVE: ENVIRONMENTAL POLICY

5.1 Importance

Faced with growing exposure to environmental risks, financial institutions need to be able to respond in a structured and consistent manner. A comprehensive environmental risk management policy is the best means for ensuring this.

Normally, such kind of policies is established in the highest level of the organizations, becoming a perennial instrument and a directive signal for staff and customers.

The benefits of having an environmental risk management policy are numerous and a well formulated policy can:

- Provide clear guidelines for staff and customers about criteria of the financial institution with respect to environment risk and environmental issues;
- Clarify detailed objectives for staff and customers to explain how the financial institution intends to achieve its aims, including the specific procedures adopted and the assignment of responsibilities for implementing them;
- Enable decisions relating to environmental risks for individual transactions to be made in a consistent and fair way;
- Provide explicit standards for evaluating the financial institution's objectives and performance with respect to environmental risk management on a regular basis.

5.2 Requirements

The fundamental requirements of an environmental risk management policy are that it is realistic and cost-effective. If financial institutions are too ambitious in formulating policies they may find out that they put too much pressure over their resources and place themselves at a competitive disadvantage by imposing unrealistic costs on their transactions. If financial institutions are insufficiently ambitious they may expose themselves to unnecessary risks and hence may suffer avoidable losses.

Three important variables determine the achievement of realistic and cost effective policies, that are:

1. Environmental risk exposure - A financial institution's exposure to environmental risk varies according to a number of factors including the precise nature and mix of the services it offers. At the same time, exposure responds to external changes in environmental regulation, supply-chain standards and end-consumer attitudes as demonstrated before. Also exposure to reputation risk can arise from increased public awareness or negative public opinion.

   To properly assess environmental risks, financial institutions should, therefore, consider the following issues:

   - Where are the main areas of environmental risk exposure in current lending and investment portfolios? Are some forms of risks greater than others? Does risk exposure differ significantly with different financial services provided, different countries of operation of different industrial sectors?
   - What are the likely impacts of current trends in environmental legislation, enforcement practices, public opinion and end consumer attitudes? What are the likely impacts of any proposed changes in credit policy for exposure to environmental risks?

2. Human and technical resource restrictions - The ability of a financial institution to respond to environmental risks is a function of its size (mobility), the level of expertise in environmental risk management available and its current organization and procedures for credit risk management as a whole.

   To obtain a realistic view of human and technical resource constraints, financial institutions should therefore consider the following issues:

   - What human resources do we have to deal with environmental risk management?

- What training is required for environmental risk management staff? Are appropriate sources of training available, and what are the cost and implications of providing such training?

3. Market constraints - The potential impact on competitiveness, by introducing environmental risk management techniques and procedures, has to be considered. An important variable influencing the types of environmental risk management policies which financial institutions adopt is their ability to pass to customers the costs associated with environmental site assessments and audits and even risk transfer costs (insurance). This depends on customers' willingness and ability to pay, which can depend on the availability and price within the market of alternative services of a similar kind. Financial institutions therefore should consider:
   - Who are the main competitors for each of the products they offer? What is the level of competition in terms of price and quality for each of product?
   - What is the likely impact on the competitive position if the financial institution imposes on customers the costs of environmental investigations and risk transfer? Are some categories of customers likely to be more sensitive to increased transactions costs than others?

Financial institutions then need to asses these variables carefully as a first step in developing an environmental risk management policy. For many financial institutions with little or no previous experience of environmental issues, this assessment involves a high degree of subjective judgment in the first instance.

5.3 Example of Environmental Policy

Below is reproduced an example of a complete environmental policy that should be adapted in accordance to the characteristics of the issuing financial institution, its maturity in environmental issues and the above mentioned variables and lines of enquiry :

“Policy Objective

The objective of our environmental credit policy is to encourage business to behave responsibly toward the environment.

We will encourage businesses, not by telling them what to do, but by making it clear that the environmental responsibility they display is an important factor in our credit decision. We will accomplish this through discussion, written requests, formal loan conditions, and decisions not to provide credit.

We especially wish to support businesses which have demonstrated exceptional environmental responsibility, either in the conduct of their business operations or because the nature of their business has a beneficial environmental impact. This means that in our marketing programmes we will target such companies and, within our normal credit pricing standards., make an extra effort to find ways to meet their credit needs.

Guidelines

The environmental potential issues listed below help us determine whether a credit purpose or a credit applicant requires a closer look to see if granting credit will be consistent with our principles and policy. Although broad in scope, our issues list cannot hope to capture all the possible situations that may cause us concern. Credit officers should be alert for any other situations that may raise concern about the environmental responsibility of a credit applicant or its affiliates or the purpose of a credit request.

Environmental Potential Issues List

Existence of any following conditions should trigger closer scrutiny to ensure a credit is consistent with our principles and policies.

- *A borrower's or its affiliates' non-compliance with environmental laws and regulations.*
- *A borrower's or its affiliates' history of being outside the environmental form for its industry as evidenced by regulatory actions or privately initiated actions such as lawsuits, public demonstrations, editorial attacks, and like occurrences when the initiators are responsible parties.*
- *A proposal to finance a project or business that, although it may have achieved technical regulatory compliance, may have a long-term adverse effect on the environment. Examples are the proposed development of a sensitive natural area, the effects of raw material acquisition (even when those raw materials are provided by an entity other than our borrower), the end use of a product, or concerns regarding energy or water requirements.*
- *A proposal to finance economic activity that directly or indirectly has negative effect on tropical or temperate forests (consult with Environmental Policies and programmes and check for division specific guidelines).*
- *Negative findings by Any Corporation's Environmental Services unit when it has been involved in assessing the environmental condition of a borrower's property or operations.*
- *Any other situation that may cause serious concern about environmental responsibility.*

Other Guidelines

In reviewing issues, relative magnitude is important. Management recognized that judgements are necessary subjective.

"Industry norm" refer to standards set in the most environmentally aware countries. Applying the principle of "bets available technology". We recognize that not all credit applicants, particularly those in some developing countries, will meet this standard. It is included to ensure that in all cases the issue is considered and evaluate for relative seriousness. In some cases, it may be appropriate to agree on separate guidelines for individual countries which are striving to upgrade their standards.

In few cases, the industry norm or national policy may not be consistent with our principles and policies. Such instances will be identified and communicated to division management by Any Corporation's Environmental Policies and programmes Department.

While we prefer that a borrower's current operations be environmentally acceptable, an aggressive and realistic clean-up programme could mitigate an otherwise unacceptable situation.

We measure environmental responsibility by the results of actual business operations, not by design standards or public relations campaigns.

Although we expect our environmental credit policy seldom to apply to consumer borrowers, consumer loan officers should keep it in mind and follow it when facts are evident that make the policy relevant.

Credit Approval

.

Credits presenting environmental issues are decided in normal credit channels. However, to ensure consistency in implementing our *environmental credit policy, in more difficult cases officers should consult Any Bank.*

Environmental Policies and programmes department regarding the banks position on issues specific to the credit request. We expect that our positions on environmental issues generally will be acceptable to most environmentally responsible borrowers.

In addition, it is important for officers to consult with senior line managers and credit administrations officers on decisions involving sensitive environmental and business issues. Since credit decisions on such issues often may involve an element of subjective judgement or call for expertise not normally possessed by banks, officers may also call on Environmental Policies and programmes for assistance in reaching a conclusion. As appropriate, Environmental Policies and Programmes will draw upon expert advice.

To make sure our perspective is sound when considering and extremely difficult and sensitive decision, approving officers any find it useful to apply the "responsible public forum" test by asking themselves whether the bank could reasonably defend its decision to responsible environmentalists. If the answer is "no", then we probably should nor approve the credit request as presently proposed.

Detailed Approval procedures

All business credit applicants must be examined for environmental issues.

When a credit officer identifies an environmental issue, mitigating circumstances may make it appropriate to continue to pursue approval of the credit application. When this is the case , approval is obtained through *normal credit channels and regularly delegated credit authorities apply. Officers are encouraged to consult as discussed above."*

CHAPTER SIX: BRAZILIAN LEGISLATION ON ENVIRONMENTAL ISSUES

Brazilian legislation is one of the most complete around the World concerning to environmental questions. The starting-point is its own constitution that has specific topics dedicated to address the environmental issues. Its article number 255 establishes four basic concepts on the subject, that are:

1. Every citizen has the right of a well balanced environment;
2. The environment is for a common use of all population;
3. Not only the government but also the population has to care and protect the environment;
4. The environment protection targets not only present but also future generations

Besides that, a bunch of other inferior legislation (federal, state and municipal) has been put in place in order to conduct business and people's behavior, sometimes creating responsibilities and obligation for those that are direct or indirect related to the environmental issues.

For financial institutions the implications have a major impact, since special laws, such as "*Environmental Crimes Law",* create personal responsibilities and penalties for financial managers, directors, shareholders and others involved in business decisions that badly affect the environment. So, the environmental risk management has been faced with more interest by the financial sector, despite the fact that the enforcement of environmental regulations does not rely within the standards of most developed countries.

However, the environmental risk management as a structured and consolidated management toll is still in the beginning. In this regard, maybe the state owned system has played an important role by implementing some agreements such as the "*Green Protocol*" that has been producing satisfactory results from both, risk and opportunities side.

CHAPTER EIGHT: CONCLUSION

Definitely, the “risk/reward matrix” that drives financial business decisions now includes environmental concerns throughout the World. I believe that this reality can be neither ignored nor reversed by financial institutions since environmental protection legislation and changing in end-consumer preferences towards “green” products is now visible in most of countries. So, businesses must demonstrate concern in their daily decision-making by implement policies, procedures and other kind of framework to seriously deal with the question.

While costly in some extent, the adoption of environmental management procedures by financial institutions has to be faced as a beneficial instrument to prevent losses. US and European experience has already showed that by neglecting environment issues financial institutions certainly incur in huge losses becoming vulnerable in this fiercely competitive global World.

Since well-established approaches to managing environmental risk are readily available, even though the extent and scope of these tolls continue to evolve and may vary from institution to institution depending on its business environment (maturity, legislation, preferences etc), there is excuse for delays.

The minimum basic steps disclosed and detailed in this paper might be a good starting-point if no deeper approach is required. For sure, by incorporating the environmental risk concepts and implementing any sort of suitable structure, the benefits will exceed the costs and financial institutions surely will have necessary broader vision to see beyond risk the opportunities emerging from the “green” businesses. This, however, is subject to another paper.