Environmental Risk Scan

A tool for integrating environmental aspects in bank lending decisions

STEP 6
How can we deal with the environmental risk?

STEP 5
How can we structure the decision tree?

STEP 4
What are the issues/questions?

STEP 3
Where are the overlaps?

STEP 2
What is environmentally relevant?

STEP 1
What is economically relevant?
ENVIRONMENTAL RISK SCAN
Banks are in the business of taking risks. Consequently, managing these risks is the bank’s first and foremost task. This resource book, however, focuses on environmental risks, among other risks that a bank is confronted with in its lending decisions. The book also provides a methodology that is contextual to a development finance institution (DFI). But banks and other financial institutions may find this book useful to them as well.

With the issue of the environment hugging today’s headlines and the concomitant pressure coming from almost all sectors to do something on environmental concerns, there is now, more than ever, no argument whether DFIs and their borrower-clients should be responsible for the environmental consequences of their actions. The degree of responsibility to take may however vary, and in fact, may be minimal in some cases. But the DFI should start, one way or the other, to fulfill basic responsibilities of mitigating environmental risks in its transactions and go further over time with greater impetus on overall environmental governance in its organization.

Each DFI has its own guiding principles and approach to environmental risk management (ERM). But two things seem to emerge though, at least based on the experience of the Project Team during its conduct of a series of workshops in the Asia-Pacific region: (a) that ERM is a function of prevailing national environmental regulations, and (b) that it is the responsibility of the lending officer to see to it that the DFI and the client comply with the minimum requirement of these regulations.

These two present “mindsets” in DFIs are the main reason this Environmental Risk SCAN (Systematic Credit Analysis) or ERS Resource and Trainers’ Guidebook was conceived.
Its aim is to give a fresh perspective and approach on the issue of ERM and provide lending officers with a systematic tool to filter, analyze and make an informed decision whether or not to grant a loan to a credit proposal submitted to them for evaluation.

The book is one of the deliverables of the “Environmental Governance Standards for Development Finance Institutions (DFIs) in Asia,” an 18-month grant project under the EU-Asia Pro Eco Programme. This project (www.egs-asia.com) aims to develop and support the initial application of Environmental Governance Standards (EGS) for financial institutions in Asia.

This book has three parts:

PART I consists of readings that were taken from an earlier publication under the EGS project, entitled Background Research on Environmental Aspects in Bank Lending Decisions, to familiarize the reader on environmental risks in bank lending, what banks (mostly in Europe) do about environmental risks and how they analyse these risks as well as additional sources of information that are relevant.

PART II provides the conceptual framework of the ERS tool through the suggested six-step screening and analytical process.

PART III is the trainer’ guidebook that provides suggested training modules on the ERS.

We hope this resource cum trainer’s guidebook and its accompanying CD-ROM will enrich your institution’s loan policy and enhance responsibility-taking as far as environmental risk management is concerned.
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Step 5. Design and structure the decision tree
Step 6. Deal with environmental risks

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Module 2: Determining environmental relevance
Module 3: Identifying and defining the overlaps in economic and environmental relevance
Module 4: Analyzing the questions and issues in environmental risk management
Module 5: Structuring the decision tree
Module 6: Dealing with environmental risks

Impressum
<table>
<thead>
<tr>
<th><strong>ABBREVIATIONS</strong></th>
<th><strong>ACRONYMS</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>ADFIAP</strong></td>
<td>Association of Development Financing Institutions in Asia and the Pacific</td>
</tr>
<tr>
<td><strong>DFI</strong></td>
<td>Development Finance Institution</td>
</tr>
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<td><strong>EGS</strong></td>
<td>Environmental Governance Standards</td>
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<td><strong>ERS</strong></td>
<td>Environmental Risk SCAN</td>
</tr>
<tr>
<td><strong>IEMS</strong></td>
<td>Internal Environmental Management System</td>
</tr>
</tbody>
</table>
This symbol indicates that here are references and links to find out more.

This magnifying glass symbol indicates that there are hard facts and information described in this part of the publication. It includes suggestions and recommendations that might help in achieving better results.

**QUOTABLES**

This box contains testimonials of organizations that have shown exemplary actions related to environmental risk management.
PART 1
ENVIRONMENTAL RISK

• What is environmental risk?

• What can banks do about environmental risks in the lending process?

• How do banks analyze environmental risks?

• What information sources are available for banks?
1. **WHAT IS ENVIRONMENTAL RISK?**

**1.1 Environmental risks as environment-induced economic risks**

The term “environmental risk” is used widely. Unfortunately, the term environmental risk is used to describe a range of different and sometimes even conflicting concepts.

For example, environmental risk is sometimes used as a synonym for environmental impact. From this point of view, a company would thus have a high environmental risk whenever it has a high environmental impact. Strictly speaking, this does not qualify as an environmental risk as there is no notion whatsoever of risk. In finance, we speak of risk whenever we do not know for sure what will happen in the future. If we know that a company will pollute heavily in the future then there is no environmental risk but environmental certainty.

Environmental risk is sometimes also used as a risk that corporate activities exert on the environment. C0₂ emissions and climate change are a good examples in this context. For instance, companies emit C0₂ which in turn contributes to the environmental problem of climate change. At this stage, we do not know what the exact impact – in both economic and environmental terms – of climate change. There is thus both an environmental and an economic risk.

The uncertain environmental impact is not usually at the forefront of lenders’ attention. Lenders usually focus on economic losses due to environmental aspects. Strictly speaking, this is not an environmental risk but an economic risk caused by environmental aspects. This could be called an environment-induced environmental risk.
1.2 Operational risks or risk of collaterals?

From a lender’s perspective, we must differentiate between two kinds of environmental risks. Banks can lose money due to environmental aspects for essentially two reasons. On the one hand, environmental aspects can have a negative impact on the operational economic performance of lenders. This is the case when environmental aspects lead to a borrower being less economically successful. A food company that is unable to sell its product after a contamination problem is a good example. As a consequence, the borrower might be unable to pay back his loans.

The operational risk of the borrower thus translates into an economic risk for the lending bank. Banks often use collaterals or guarantees to secure their loans. Banks draw on collaterals, guarantees or similar whenever a lender is unable to pay back his loans.

\[1\] The term ‘pay back’ is used rather loosely to encompass both the ability to pay back the principal and pay the interest charges.
Collaterals, therefore, offer an additional safety net for banks. Environmental aspects, on the other hand, can have a negative impact on the value of these collaterals. The most prominent example is environmental contamination of real estate.

Environmental contamination (e.g., oil or asbestos) can have a great impact on real estate prices, thus lowering the value of collateral. According to some sources, the average cost of cleaning up a contaminated site is about 10 times the size of an average small to medium business loan.

It is important to understand the link between environmental operational risk of the debtor and environmental risk of the collateral. Collaterals are a kind of safety net for loans. They are only used in cases whereby debtors are unable to pay back their loans. If we can be sure that the debtor will pay back his loan we do not need any collateral and the environmental risk of the collateral is unimportant for the bank.

“The primary task of environmental risk management is to minimize loan defaults and risks to the bank’s reputation. In particular, with corporate customers, we have seen that environmental risks may have a distinct impact on the credit rating of a customer and the value of collateral provided to the bank. For example, controversial materials like asbestos and lead may be banned and can give rise to hefty claims for compensation. Obsolete plants and new environmental legislation can trigger high investment costs and even result in partial closure of some facilities. All these influences the credit standing of a customer and at worst can result in defaults.”
The reverse also applies. If we can be sure that the debtor will be able to pay back his loan the (environmental) risk of the collateral becomes unimportant. This relationship between environmental operation risk and environmental risk of the collateral is depicted in Figure 1.

**FIGURE 1:**
The role of operational risk vs. risk of collaterals

<table>
<thead>
<tr>
<th>Risk of Collateral</th>
<th>High</th>
<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

Risk of debtor’s operations

Source: Own

Historically, most banks have focused on the environmental risk of collaterals. This is due to significant losses that banks have made in this field.

It is important to note that the kind of risk analysis/risk management that has to be conducted for both kinds of environmental risks differs significantly. Risk analysis covering collaterals focuses primarily on the “environmental health” of the collaterals. It aims to establish if the value of the collateral is compromised by environmental aspects.
“Convinced that sustainability increases the value of a company, we have refined our own rating system and included non-financial risks. Two years ago, we made sustainability ratings an integral element of our equity research publications. We thus inform our investment clients about potential non-financial risks that may impact the future development of their investments.”

Environmental risk analysis of the debtors’ operational performance is much more similar to environmental financial analysis from an equity perspective. From this point of view, the threat that environmental aspects can lead to a lower economic performance or the opportunity that environmental aspects can have a positive influence on the economic performance of a debtor are analysed.

1.3 Systematic vs. unsystematic environmental risks

From a financial point of view, it is important to distinguish between systematic and unsystematic environmental risks. Banks will usually give loans – not to a single or very few lenders – but to many different lenders at once. As a result, some of the risks relating to their lending decisions can be diversified.

Risks that can be diversified are usually called unsystematic risks. On a portfolio level, diversifiable risks become irrelevant. While diversifiable risks cannot be predicted on an individual level with certainty, they are certain on the level of the entire portfolio.
A good example of an unsystematic environmental risk is the risk of an accidental release of a pollutant. A bank can diversify this risk by investing in many different companies. It is not known with certainty that a particular company will emit a pollutant. However, the probability that any company included in the portfolio will emit a pollutant can be forecasted with greater certainty.

Other risks – called **systematic risks** – cannot be diversified. Systematic risks are relevant both on an individual level as well as on a portfolio level. Systematic risks usually exist when all borrowers share a characteristic.

A good example is energy use as all companies inevitably need energy. As a consequence, all companies are affected when energy prices change. This risk, i.e., the possibility that energy prices change in the future, cannot be fully diversified by giving loans to many different companies.

1.4 Environmental risks as social constructs

The term “environmental risks” leads us to believe that environmental risks are a purely natural phenomenon. We thus interpret environmental risks as economic risks for a bank that are caused by environmental impact. It must be noted that not all environmental impact automatically translates into economic risks.

However, stakeholders may react to environmental impact in a way that creates an environmental risk, first for the borrower, and then for the lender. As a consequence, there is no guaranteed link between environmental impact and environmental risks for a bank. The question is if and how stakeholders translate environmental impact into environmental risks. Or, put in a more provocative way, environmental risks are social constructs.
From the perspective of banks, there can be different kinds of risk. A typical distinction is among:

- Direct risks
- Indirect risks
- Reputational risks

It is possible that banks are held directly responsible for the consequences of environmental incidents. This, for example, can be the case when a bank decides to repossess a collateral after a borrower fails to meet his obligations and this collateral turns out to be contaminated. As a new owner of collateral, the bank might be obliged to clean up the contamination. The associated costs can exceed the nominal value of the collateral.
One option for the bank is to refuse taking over a contaminated collateral. However, as a consequence, the loan will not be secured anymore.

Another way a bank can become directly responsible is through a “shadow directorship.” At times, especially during financial difficulties, banks may decide to take a leading role in the management of a company.

By taking a leading role, banks hope to be able to secure a company’s financial survival and thus avoid losing money. However, by taking a leading role, the responsibility linked to a management position may shift from the formal management in place to the de facto management role of the bank. As a consequence, banks may become liable for the company’s actions, including its environmental risks.

Another possibility is that a financial institution finances a piece of equipment or similar in such a way that it legally retains its ownership and is therefore assumed to be liable for its malfunctioning.

Direct risks and the circumstances under which they materialize depend to a large degree on the legislation that is in place. It is for this reason that direct risks are not considered in this report in more detail.
1.5.2 Indirect risks

From the perspective of bank lending, funds are handed over to borrowers. Borrowers might be exposed to environmental risks and it is these environmental risks that can have a detrimental impact upon:

- the borrower’s ability to pay back a loan, and/or
- on the value of the collateral or guarantee.

In these cases, environmental risks will have an indirect impact on the lending bank as they impact the bank via their clients.

Indirect risks are far more common and far more important than direct environmental risks.

1.5.3 Reputational risks

A third kind of risk exists: reputational risks. Banks are increasingly identified with the kind of businesses or projects they help to finance. While the legal responsibility might be with the management or the shareholders of the borrower, stakeholders increasingly consider the financing of environmentally harmful businesses or projects as illegitimate.

A good example is the case of WestLB’s financing of an oil pipeline in Ecuador. For the most part the construction of this pipeline would run parallel to an existing pipeline although one particular section of the pipeline will be diverted through Andean cloud-forest within the Mindo-Nambillo reserve.
According to some accounts, such an area is home to approximately five percent of the world’s bird species of which some are considered to be endangered. In addition, there remains a risk of damage to the proposed new pipeline through landslides and earthquakes. For instance, during the period 1998-2001, around 145,000 barrels of oil have been spilt from the existing state-owned oil pipeline in Ecuador as a result of landslides. When combining these environmental risks with the fact that over 70 percent of the population in the Mindo-Nambillo reserve have jobs in eco-tourism, it became clear that serious reservations exist regarding the proposed pipeline.

Due to the amount of negative publicity that WestLB faced from NGOs and environmental pressure groups in relation to its financing of the Ecuadorian pipeline, the bank subsequently decided to adopt the Equator Principles in 2003. Today, in an effort to guard against reputational risks, projects requiring over US$50 million in finance are subjected to the Equator Principles.
2. WHAT CAN BANKS DO ABOUT ENVIRONMENTAL RISKS IN THE LENDING PROCESS?

Banks can address environmental risks in different ways. Among the most important tools are:

- Risk-adjusted pricing
- Monitoring
- Covenants
- Refusal of loan
- Portfolio optimisation

2.1 Risk-adjusted pricing

Banks are used to dealing with risks as all bank lending decisions are usually exposed to some degree of risk. Banks face the challenge to price loans accordingly. The agreed interest on a loan consists of many different components. The most important components are:

- The risk-free rate of interest
- Other costs
- Profit margin
- Expected net loss (on a portfolio level)
- Unexpected loss (on a portfolio level)

The risk-free rate reflects the time value of money. It is commonly assumed that investors prefer to have money sooner rather than later and the risk-free rate reflects this preference. Banks must obviously cover the costs (other than the costs for refinancing) that are linked to the lending decision. Additionally, banks usually aim to make a profit, which is reflected by the profit margin.
Environmental risks can have an influence on the two components:

- Expected net loss (on a portfolio level)
- Unexpected loss (on a portfolio level)

Banks know that some of their loans will not be paid back in full. Put differently, they expect to lose some money. The amount of money they expect to lose must be priced in. Strictly speaking, this does not constitute a risk from the point of view of the bank. This is once again linked to the differentiation between systematic and unsystematic risks.

A bank that knows that it will lose one percent on average of the loans it gives out due to environmental reason will add one percent to the interest it agrees with its borrowers. It is unimportant in this context, if each particular loan loses one percent or if the loan portfolio in total loses one percent. However, some environmental aspects have a systematic nature and environmental risks can therefore not be diversified away entirely. As a consequence, the performance of the loan portfolio cannot be predicted with certainty; there is a risk that there might be unexpected losses.

Even if banks do diversify, they are still exposed to this systematic risk. It is commonly assumed that banks, just like investors, are adverse to risk. Banks will therefore demand to be compensated for taking on this risk. This risk will come about whenever there are systematic environmental risks.

Environmental risks can be linked to two out of the five components mentioned above. Pricing risks correctly into lending decisions is at the same time crucial and notoriously difficult. It is important to understand that environmental risks can impact credit pricing in two very different ways.
Risk-adjusted pricing must on the one hand price in expected losses, i.e., the amount of money the banks expects to lose on average. This can be done for each loan in isolation. Risk-adjusted pricing, on the other hand, must consider the amount of non-diversifiable risk that a loan adds to the loan portfolio of the bank. This is notoriously difficult to do. The analysis of loan applications can thus be done both by looking at individual loan applications as well as by an analysis of the loan portfolio.

It is important to note that risk-adjusted pricing of loans does not reduce the actual amount of environmental risk. However, by giving the corresponding price signals, banks can contribute to making sure that companies get the right incentive to reduce environmental risks.

2.2 Monitoring

In some cases, environmental risks will develop over time. By reacting timely to an upcoming threat, a bank’s environmental exposure to environmental risks can be reduced. It can, for example, be useful to check regularly if a borrower who exerts an environmentally sensitive activity still complies with all relevant rules and regulations after the loan has initially been approved.

2.3 Covenants

In principle, loans can be approved subject to terms and conditions. These terms and conditions are usually called covenants and can cover environmental aspects. It is for example possible that a bank will demand that a borrower trains his personnel with respect to environmental risks. Covenants are a way for banks to help reduce environmental risks.
2.4 Refusal of loan

Another possibility for banks is to not grant a loan in response to environmental risks. Obviously, this is something that cannot be done every time there is a risk as most loans are subject to at least some risk. Not granting a loan is an option whenever risk-adjusted pricing cannot be practised.

2.5 Portfolio optimisation

As mentioned earlier, we can distinguish between systematic and unsystematic environmental risks. Unsystematic environmental risks can be diversified. As a result, they become expected net losses on a portfolio level.

Systematic risks, on the other hand, cannot be diversified away as this is usually due to characteristics that all portfolio elements share. All companies use, for example, energy. An increase in energy prices will result in higher costs for all companies thus leading to a higher rate of energy price volatility. This situation will subsequently lead to a higher systematic risk for the entire portfolio.

This risk can be dealt with both on an individual as well as on a portfolio level. One possibility is to do a portfolio analysis of environmental risks. This portfolio analysis will identify the key environmental characteristics of the environmental risks that an entire portfolio has been exposed to.
3. HOW CAN BANKS ADDRESS ENVIRONMENTAL RISKS?

Banks use a number of different approaches to assess environmental risks. In this report, we try to structure the different approaches that are in use today. In the context of this report, we make a distinction among the following:

- Rating approaches
- Screening approaches
- Integrated analyses
- Portfolio analyses
- Staggered approaches

A number of different terminologies are in use and there are overlaps among these approaches. The terminology used here reflects our choice.

3.1 Rating approaches

The term “rating” is usually used in the financial markets in the context of traditional financial risk. The idea of ratings is to assign a combination of letters and numbers to indicate the expected risk of default of a borrower. Ratings are best known as products of companies such as Moody’s Investor Service and Standard & Poors Corp. Financial rating companies offer a service to providers of debt by signaling the expected probability of default. These financial ratings focus consistently on the perspective of providers of debt, i.e., they assess the probability of default of the borrower from the perspective of the lender.²

² The perspective taken might sound irrelevant at first glance. However, a borrower might for example have access to a state guarantee. In this case, the probability that the lender will not be paid back is low, while the probability of the borrower not being able to pay back the loan himself might be high.
In the meantime, ratings have now also been applied in a sustainability context. They are both used by banks internally as well as by specialised external eco-rating agencies that aim to follow the examples of conventional rating agencies that assess borrowers once for the benefit of several (potential) lenders.

A plethora of different rating approaches are used in this context. What these approaches have in common is that they assess the (potential) lenders with respect to a number of different criteria and usually assign some form of alphanumerical rating result (AAA, A1, points, or similar). The idea is that the performance of companies with respect to the assessment criteria becomes clear.

What differentiates ratings from other assessment tools is that a number of different lenders are assessed according to several criteria and that the result is usually expressed in a single mark or indicator. Companies can subsequently be compared or ranked according to their rating.

Environmental or Sustainability Ratings can have different explanatory powers and it is important to find out what the content of a rating is supposed to be. Ratings can for example be used to answer the following questions:

- How green or sustainable is the company?
- How likely is it that a collateral is contaminated?
- How likely is it that a company will not be able to meet its financial obligations due to environmental reasons?

All of these questions will depend not on a single criterion as there are many different criteria that can have an impact. Companies will be assessed according to these criteria and the rating organisations can then come up with an overall assessment of the company.
Ratings are conducted in many different ways. However, we can identify some basic elements which are part of most ratings.

Firstly, most rating approaches structure the criteria they apply.

As previously mentioned, ratings apply across many different criteria. Most rating approaches subdivide the criteria they use into subgroups. These subgroups are usually not arbitrary but reflect some kind of assessment logic. Subdividing criteria into subgroups has two main advantages. On the one hand, the rationale of the criteria being used becomes clear. On the other hand, by structuring criteria it is easier to keep an overview of the criteria that is being used in the rating.

### APPROACH TO RATINGS

The rating approach of Inrate is a good example. The overall rating is subdivided into these sub-groups:

- Product
- Processes
- Management

Each sub-group covers a range of different criteria.

*Source: www.inrate.com*
Secondly, most rating approaches are sector- or activity-specific.

Eco-ratings aim to compare companies. However, the activities performed by the companies can differ substantially. Eco-ratings thus face the challenge of comparing for example an energy supplier with a telecoms company. To alleviate this problem, most eco-rating organisations have approached this challenge by using sector- or activity-specific approaches.

We can broadly distinguish among three different ways in which these rating approaches take into account the distinctiveness of different sectors:

1. Some rating approaches use sector or activity-specific criteria/questionnaires. This allows considering specific areas of concern for each sector or activity.

2. Some rating approaches will include additional questions/criteria that cover any aspects that are specific to the sector or activity the company is involved in.

3. Some rating approaches give different weights depending on which sector or activity the company is part of. The rating could, for example, put more weight on all criteria being part of a sub-group processes, if the company employs harmful processes.

These three different alternatives can also be combined (i.e., some rating approaches will use sector-specific criteria and adjust the weights of the criteria based on the sector).

Thirdly, most rating approaches use a linear scoring system to aggregate the information.
The methodology used for Dow Jones Sustainability Indexes is a good example of an assessment approach that structures by criteria, and uses a sector-specific approach and a scoring approach to arrive at an overall assessment.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Criteria</th>
<th>Weighting (%)</th>
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</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Codes of Conduct / Compliance / Corruption &amp; Bribery</td>
<td>4.8</td>
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<tr>
<td></td>
<td>Corporate Governance</td>
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<td>Risk &amp; Crisis Management</td>
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<td>Environment</td>
<td>Environmental Policy / Management</td>
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<td></td>
<td>Industry-Specific Criteria</td>
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*Criteria assessed based on publicly available information only

Ratings aim to derive an overall mark or grade based on a multitude of criteria being used. For this purpose, the performance regarding the different criteria must be aggregated to a single result with most rating approaches using a rather simple scoring systems to aggregate the information. Typically, each sub-group is assigned a percentage of the total points and analogously each criterion within the sub-groups is assigned a percentage. The percentage assigned to each sub-group or criterion will depend on its importance.

Eco-rating approaches are not only performed in-house by banks but there also exist many external eco-rating agencies. The following table gives some examples of existing external eco-rating agencies.
## Table 1.

### External Eco-Rating Agencies

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<th>Name</th>
<th>Country</th>
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<tr>
<td>DSR – Dutch Sustainability Research</td>
<td>Netherlands</td>
<td><a href="http://www.dsresearch.nl">www.dsresearch.nl</a></td>
</tr>
<tr>
<td>Fundacion Ecologia Y Desarrollo</td>
<td>Spain</td>
<td><a href="http://www.ecodes.org">www.ecodes.org</a></td>
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<td>Sweden</td>
<td><a href="http://www.ges-invest.com">www.ges-invest.com</a></td>
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<td>Centre Info</td>
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<tr>
<td>Eiris</td>
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<tr>
<td>Kinder, Lydenberg &amp; Domini &amp; Co., Inc. (KLD)</td>
<td>USA</td>
<td><a href="http://www.kid.com">www.kid.com</a></td>
</tr>
</tbody>
</table>
Today, there is not just one single Eco-Rating approach but a multitude of different eco-rating approaches that exist. Eco-ratings are used for different purposes although today they are predominately used for asset management (Socially Responsible Investment - SRI or similar). However, some of the ratings, for example, the rating promoted by SERM, specifically address environmental risk.

3.2 Screening approaches

Screening approaches take a more radical stance. They include or exclude possible investments based on a list of predefined inclusionary or exclusionary criteria. In practice, some banks define activities they would not like to be linked to i.e. exclusionary screens. For instance, a bank might have a policy not to have any commercial relationship with tobacco companies. As a result, every loan application is checked to see if the company is involved in tobacco. If a company fulfils such an exclusionary screen the loan application is automatically turned down.

Screening approaches appear quite easy to implement at first sight. However, there are a number of problems related to screening approaches.

An unambiguous definition of exclusionary criteria is difficult in practice. This can be explained using the example of companies involved in arms production. Some actors in the financial markets do not want to be involved in arms production. There are a number of problems related to this exclusionary criterion:

- While many people dismiss the use of arms by the military, most people accept the use of arms by a democratically legitimized police. As a consequence, the production of weapons for use by the policy is often accepted. However, the delimitation between both uses is difficult or even impossible in practice.
• There are many goods, termed ‘dual use’ goods that are used not only by the military but also in a civilian context. Vehicles are a good example in this context. Some actors in the financial markets reject any involvement in companies that produce products that are used in combination with weapons. Where these products are also used in a civilian context, it is difficult to delineate arms-related products from civilian products.

• Many companies produce a range of products and arms-related products that may only constitute a small portion of their overall activities. In practice, it is impossible to exclude every arms-related involvement independent of its relative importance. This is due to the following reasons. Firstly, by excluding companies with an even minor involvement; many companies are screened out. For instance, a total ban on companies selling tobacco would screen out most supermarkets. Secondly, minor involvements are often not reported and thus can not be detected. In practice, a hurdle rate, usually expressed as a percentage of sales, is defined above which a company is excluded.

To really avoid the involvement of a bank with a particular activity, it is necessary to also consider different levels of the activity’s life cycle. To produce arms, input materials are required. It could be argued that involvement with a supplier producing input materials needed for arms production constitutes an involvement in the production of arms.

Obviously, the further away a supplier is situated from the production itself, the more difficult it is to identify links to the activity that is supposed to be excluded.
Screening approaches are especially useful when a bank needs to reduce its involvement with a particular sector or activity at any cost. This is especially the case when there are reputational risks at stake. For reasons of portfolio optimisation, this can obviously not be extended to too many sectors.

Inclusionary screens are of a special importance in the context of lending decisions. Some specialised banks are giving preferential conditions to environment-friendly borrowers. A good example is the German Umweltbank. Umweltbank gives preferential conditions to lenders with an environment-friendly project. Umweltbank explicitly mentions among others photovoltaic, wind power, and hydropower projects. This can be considered to be an inclusionary screen.

3.3 Integrated analyses

Another possibility is to integrate environmental aspects fully into the lending process. This approach acknowledges that environmental aspects can have an impact on the outcome of the credit assessment and that there is essentially no difference between environmental aspects and other aspects considered in the credit assessment.

“The growing awareness of environmental factors and how they might affect a borrower’s repayment ability prompted us, as early as 2000, to expressly introduce the environmental factor in our credit assessment system.”
Today, integrated analyses are most advanced with respect to environmental risks on collaterals. Many banks check for possible contamination of land they accept as collaterals as part of their standard loan process.

In contrast, integrated analyses of environmental risks on a lender’s operational performance are currently not very advanced at this stage. Those banks that address these issues rely mostly on separate assessments which are then integrated at a later stage.

“Violating environmental and social standards is a sure way to generate corporate risks, which means, in our case, credit risks. To manage these risks, we’ve integrated them into our credit policy, our ratings and information tools, and our training programs. The optimization of environmental risk analysis is an ongoing process: one of our challenges is to implement them in our subsidiary banks in Central and Eastern Europe.”
3.4 Portfolio analyses

As mentioned above, it is important to differentiate between systematic and unsystematic environmental risks. Unsystematic environmental risks can be diversified away and therefore do not constitute a risk on a portfolio level.\(^3\)

However, unsystematic environmental risks can only be diversified away if the loan portfolio is sufficiently diversified with respect to these risks. For example, if the majority of a bank’s loan portfolio consists of food companies and there exists an environmental risk related to the production of food then it is very likely that the portfolio will be negatively affected across the entire portfolio, if the risk materializes. Banks must therefore make sure that their loan portfolio is sufficiently diversified.

In this respect, there is a large overlap with existing traditional portfolio management of loan portfolios. Banks should therefore diversify their loan portfolio sufficiently to reduce unsystematic risks. To do this, banks will, for example, cap the maximum amount that is given to companies of any particular sector. This way, banks make sure that any sector specific risk will only affect a limited part of their entire loan portfolio.

What is not usually understood by banks in Europe up to this point is that environmental risks tend to have a different structure than conventional risks. Environmental risks often have a cross-cutting and systematic nature. For example, climate change is a good illustration of this characteristic. It is assumed that C\(^2\) emissions are a major contributor to climate change with C\(^2\) being emitted by all companies that use fossil fuels. As all companies use fossil fuels they all contribute to climate change.

\(^3\) However, it is still important to price the expected environment loss correctly.
If measures to reduce CO$_2$ emissions were adopted then all companies would be affected. However, this risk cannot be fully diversified away as it constitutes a systematic risk. Portfolio analyses, therefore, face the very difficult challenge of reducing this systematic risk.$^4$

What most banks do not fully understand up to this point is the crucial role of eco-efficiency in this context. Eco-efficiency is usually related to the operational performance of companies. What is not appreciated is that the more efficiently a lender uses an environmental resource the better he is shielded from a potential future scarcity of that resource and/or price fluctuations. By analyzing the eco-efficiency of the entire portfolio, systematic environmental risks can therefore be reduced.

### 3.5 Staggered approaches

The majority of European banks that integrate environmental aspects in their bank lending decisions seem to apply some kind of staggered approach. This could also be referred to as an environmentally-differentiated loan assessment approach.

However, environmental aspects will not have an impact on all loan applications. Some lenders are more likely to be affected by environmental aspects than others. Checking all loan applications for environmental aspects would thus be uneconomical and would distract resources from more relevant cases. As a consequence, most banks that consider environmental aspects in loan applications operate some kind of staggered approach.

$^4$ Obviously, the risk is not the only risk that banks must manage and it is therefore not possible to minimize this risk as this might lead to an increased level of other risks. Banks must try to minimize the overall level of risk. Systematic environmental risks only constitute a part of the overall risk.
They use a kind of decision tree to decide if environmental aspects should be considered (for a generic decision tree of this kind see Figure 2). The objective of this process is to use specialized questionnaires/criteria or to call in specialists only in the most relevant cases. We can largely distinguish between two main reasons that make a lender environmentally sensitive:

1. The lender is part of an environmentally damaging sector, conducts environmentally harmful activities, is situated in an area that makes it likely that environmental damage will occur or has already occurred, or similar.

2. Some of the initial questions in the loan applications suggest that environmental risks may exist.

The former aspect is not related to the individual borrower but to characteristics of the borrower that make it statistically more likely that the borrower is subject to environmental risks. The latter is related to the specific characteristics of the borrower. The following table contains an example of a list of environmentally sensitive sectors.
ENVIROMENTALLY SENSITIVE SECTORS

1. Agriculture
2. Dry cleaning
3. Electricity (production and supply)
4. Electro-plating and metal finishing
5. General engineering
6. Manufacture of basic metals and metal products
7. Manufacture and bulk storage of chemicals
8. Manufacture of electrical and optical equipment
9. Manufacture of food, beverages and tobacco products
10. Manufacture of leather and operation tanneries
11. Manufacture of mineral products (glass, ceramics, bricks, cement and concrete)
12. Manufacture of pulp and paper, plus printing
13. Manufacture of rubber, plastic and derived products (with addendum on PVC manufacture and the chlorine industry)
14. Manufacture of textiles
15. Manufacture of wood products
16. Mining and quarrying
17. Oil and gas extraction and refining
18. Petrol stations and bulk storage of fuel
19. Property development
20. Process and use of nuclear materials
21. Waste management

Source: Slightly modified from Case 2000
Once a borrower has been identified as being environmentally sensitive, different possibilities exist. Most lenders will, as a result, analyse the environmental risks in greater detail. Some banks operate a one-step process while others stagger their approach into two steps or more. The idea once again is to adjust costs and efforts according to the exposure of the borrower to environmental risks. Further steps can encompass among others:

- Demand of additional information (for example via questionnaires)
- Commissioning of external rating reports
- Commissioning of external auditors
- Insurance of credit risks
- Covenants

How banks will deal with environmental risks in such
a staggered approach will depend to a large degree on the banks’ policies on environmental risks. They may range from a straight rejection of environmental risks to, for example, an adjusted-pricing or the inclusion of covenants.

There seems to be widespread agreements amongst the banks that a staggered approach makes good economic sense when dealing with environmental risks.

Such a staggered approach has also been chosen for the Equator Principles.

The Equator Principles are a set of voluntary guidelines for managing environmental and social aspects in project finance lending above US$50 million. It is assumed that the Equator Principles now cover about 80% of the market for project finance worldwide [38]. They were adopted by ten banks in 2003. As of the end of 2005 they have been adopted by 36 banks from 16 countries (Source: www.equator-principles.com, last accessed December 11th, 2005).

While they are not primarily targeted at risk assessment it is believed that they have a positive impact on risk assessment. Project finance projects tend to be very visible to the public eye due to their size and the fact that they are often infrastructure projects or similar. Some critical stakeholders assert that banks have signed up or are signing up to the principles due to the reputational risks that they are exposed to.

Continue next page
The Equator principles do not prescribe exactly how banks should analyse or manage environmental risks. Instead they provide a framework that leaves room for banks to implement the guidelines within their existing lending processes.

The Equator Principles use a staggered approach. They distinguish among three categories (A, B and C) of projects. Projects are categorized as category A projects if they are “likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented.” Category B projects, if they have “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.” Category C projects are “likely to have minimal or no adverse environmental impacts” (Source for all quotes: http://www.equator-principles.com/exhibit1.shtml, last accessed Dec 11th, 2005).

The Equator principles prescribe steps that are to be taken based on the categorization of the projects. Banks must complete an Environmental Assessment for category A and B projects and define issues that need to be addressed in the Environmental Assessment. For all category A projects (and category B projects as considered appropriate by the lender) an Environmental Management Plan must be prepared. The Equator Principles also prescribe among other things that relevant stakeholders have to be consulted and that the borrowers must covenant among other things to comply with the Environmental Management Plan.

The Equator Principles provide a unifying framework for the participating banks. However, it should be noted that the Equator Principles do not ban banks from financing environmentally damaging projects. More detailed information about the Equator Principles can be found here: www.equator-principles.com
3.6 Discussion

Banks have different instruments at their disposal for the treatment of environmental risk. All instruments mentioned above are in use by at least one bank. Which instrument(s) a bank decides to use depends among others on their definition of environmental risk and the kind of lending a bank makes. None of the instruments is a “one size fits all” instrument.

A bank that is primarily concerned with its reputation might, for example, use screening. Stakeholders are unlikely to accept involvement with a company they reject on the basis that it scores high on an environmental rating. On the other hand, a bank that aims to focus on specific sectors with a positive environmental contribution might want to use inclusionary screens.

A lender that is primarily concerned about systematic risks might want to check his portfolio concerning unusual high concentrations of these environmental risks. A portfolio-based instrument is therefore of primary interest for these lenders.

Rating approaches are very popular for environment-oriented equity investments. They are now also used by some banks in their lending operations. Where the companies are fairly large, usually multi-national companies external ratings might already exist that can be considered.

Most banks that consider environmental risks in their lending decisions operate some kind of staggered approach. These approaches allow banks to concentrate on the most pertinent cases of environmental risks.

Fully integrative approaches that are able to price environmental risks and allow a full integration are still the exception.
Obviously, one of the main challenges for lenders is to receive the necessary information to assess environmental risks. We can broadly distinguish between two kinds of information in this context.

On the one hand, lenders will need information about the environmental challenges that borrowers of a particular sector or conducting a particular activity face. Put simply, borrowers must understand the environmental problems related to each sector or activity.

On the other hand, banks need information about the environmental characteristics of their respective clients. Both areas are of course related. To know what kind of information to look for concerning a client, banks must, first of all, understand the activities of the sector that the client operates in.

4.1 Sector-specific activity information sources

It is difficult to generalize information sources for sectors and/or activities. For each sector, there are special-interest associations or similar that can provide relevant information. Some organizations have also developed handbooks for different sectors and activities.
• One European example is the European Integrated Pollution Prevention and Control Bureau (http://eippcb.jrc.es/). It has, for example, published some reference documents on Best Available Techniques in different industries.

• Another example is a UK government-funded programme called Envirowise (www.envirowise.gov.uk). Envirowise also gives some sector specific information that points to some of the main environmental issues of different sectors.

• The U.S. Department of Energy runs an Industrial Technology Program (www.eere.energy.gov/industry), which focuses very much on energy-related question. They especially provide advice for energy-intensive sectors (for example, aluminium, petroleum refining) and for energy-intensive processes (for example combustion processes).

• Another American example is the Envirosense programme (sometimes also referred to as Enviro$en$e). Envirosense gives some Industry Sector Business Assistance for a few sectors/activities (currently: Metal Finishing, Electronics and Computer Manufacturing, Petroleum Refining and Printing). It consists to a large degree of a collection of links and additional information sources.

• Another (partly) US-EPA funded programme is the Pollution Prevention Resource Exchange (P2Rx™ - www.p2rx.org). It is a consortium of eight regional pollution prevention information centres. On its website, it offers both specialised advice for some sectors (for example agriculture and construction) and for some topics (e.g., hazardous waste).

Continue next page
• The Canadian Pollution Prevention Information Clearinghouse (www.ec.gc.ca/cppic/en/index.cfm) has on its website a very detailed sector related search tool. The search tool only distinguishes between a great number of sub-sectors but also allows to search for particular activities in the sector.

• The United Nations Environment Programme’s (UNEP) Production and Consumption Branch (www.unepie.org/pc/cp/home.htm) of UNEP’s Division of Technology, Industry, and Economics has published some interesting studies about cleaner production in a few sectors (primarily food and paper-related sectors).

• A rather comprehensive resource is the sector notebooks (www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/) published by the US-EPA. Sector notebooks portray among other things an environmental profile of the sector.

• A good resource exists in the form of the World Bank Pollution Prevention and Abatement Handbook (available as PDF-file from the worldbank website).

• A good meta-source for pollution prevention resources (www.p2gems.org) is supported by Northeast Waste Management Officials’ Association and the Toxics Use Reduction Institute. It allows a listing of resources by sector.

It is impossible to list each available resource for every sector. However, the resources mentioned above will allow for a first overview of the environmental characteristics of each sector and will point to further sources.
Another way banks find information about a sector is to look at the environmental impacts created (and reported) by other companies of the same sector. Different countries have more or less stringent law on the reporting of environmental impacts and most environmental reporting is unfortunately far from providing a reliable picture of a company’s environmental impact. An excellent resource for a list of available corporate environmental reports that also lists companies by sector is Corporate Register (www.corporateregister.com).

Some countries ask companies to report their emissions and make this information publicly available. A good example is Scorecard - The Pollution Information Site (www.scorecard.org). This website allows to query environmental impacts by individual companies as well as featuring a list of toxic waste sites.

With the help of this sector, information banks are able to identify the major environmental challenges that their (potential) lenders face. This information can then be used to analyse if and to what degree they are likely to be subject to environmental risks.

### 4.2 Company-specific information sources

To assess the environmental risk of a (potential) borrower, banks must of course gather environmental information about the borrower. Some of the information sources typically used by banks are listed below:

- Many banks use questionnaires to gather information. Typically, these questionnaires are sector- or activity-specific based on sector information.
• Some companies publish environmental or sustainability reports or similar. However, this applies mostly to large companies and a lack of standardization makes interpretation difficult.

• Some companies use processes that require special permits. By checking in specialised databases to see if the companies have applied for these permits, banks can subsequently check to see if the companies undertake activities that could be linked to environmental risks.

• Another source of information are media sources (newspaper, specialised journals, TV, internet, etc).

• Some of the information sources listed for sector specific information can also be used to gather company-specific information. A good example is www.scorecard.org that lists individual sites of companies.

• Collaterals play an important role in environmental risk assessment of banks. Land registry offices are an important source of information in this context. By finding out more information about the current and previous owner of a piece of land, the probability and kind of possible contamination can be assessed more easily.
PART 2
THE BUSINESS CASE FOR ERS

1. Introduction

2. Organizing for ERS

The ERS Conceptual Framework

Step 1. Determine the sectors that are economically relevant to your bank
Step 2. Determine what is environmentally relevant to your bank
Step 3. Identify and define the overlaps between what are economically and environmentally relevant to the bank
Step 4. Determine and define the issues/questions involved in environmental risk screening in the bank
Step 5. Design and structure the decision tree
Step 6. Deal with environmental risks
How do banks consider environmental risks in lending decisions? This is the question that this resource book aims to address. At first glance, environmental risk in bank lending decisions sounds like a rather clear topic area. It is not. Different people understand environmental risk differently and even banks have different ideas of what constitute an environmental risk. As a result, banks treat environmental risks in various forms and in different ways.

Banks play a crucial role in the context of environmental risk. Integrated into their credit/project evaluation process, they can predict which environmental risks can be determined from a project proposal put forward for financing. It is evident that environmental risks can have a negative impact on economic capital and it is bank management’s responsibility to ensure that the bank’s economic capital is shielded from the detrimental effects that environmental risks can do. In this context, environmental risks are critical business risk for banks.

The way risks are managed is at the heart of a bank’s operations and of crucial importance for the success of a bank. This resource book suggests a tool that aims to standardize the process to assist banks in the understanding and mitigation of environmental risks. The recommended analytical process and system can be integrated to the bank’s existing credit or project evaluation framework to close gaps identified due to environmental risks.
The following set of policy statements, commitments and responsibilities are provided here as a guide in organizing your institution toward implementing the ERS concept and framework as part of your corporate environmental governance policy. As in any institution, the leadership and involvement of top management is crucial to its operational success.

2.1 Policy statement

The ERS tool is designed to support the objectives and requirements of the bank’s corporate environmental governance policy. It can be established as an organizational function integral to the bank’s corporate lending operation and loan and investment portfolio management. As such, the bank shall allocate the necessary resources to make this function operational and properly installed and disseminated to all bank officers and employees.

2.2 Commitment to uphold corporate environmental performance objectives

Pursuant to the bank’s commitment to corporate environmental management performance and for ensuring its contribution to sustainable development, the bank is committed to uphold environmental performance as its manifestation to pursue good corporate governance.

All staff and line units of the bank, particularly those primarily concerned with loan and investment portfolio management, are therefore enjoined to support and observe the ERS and integrate this within the mainstream of their operating activities.
2.3 Governance and responsibility

2.3.1 Governance

The responsibility of policy formulation and implementation of the ERS shall be a core function of an ERS Group, an interdepartmental office or unit created within the bank, to be chaired by the Risk Management Officer, the Head of the Credit Policy and Supervision, or a Senior Officer of the Lending Group.

2.3.1.1 The head of the ERS Group shall be a senior executive responsible for establishing institutional policy, standards, and procedural guidelines for the proper implementation of the environmental risk assessment system in the bank.

It shall be his/her primary responsibility to advise the CEO and/or senior management of environmental impacts or environmental risk considerations before bank lending decisions are made or any administrative commitment before a new finance product is issued.

2.3.1.2 Other members of the ERS Group may be composed of executives from Corporate Planning and Programs, Investment Banking, Branch Banking, Credit Support and information/Technology Resources.
2.4 Responsibilities

2.4.1 The responsibilities of the ERS Group include the following:

a. Tracking environmental projects. The ERS Group will closely monitor projects for financing. The group may also review the alternatives to be implemented, allocation of resources, setting of priorities, etc.

b. Each member of the ERS Group will routinely share with members of the committee a list of divisional projects, showing the status of the projects as they go through the phases of the ERS process.

c. Resolving differences in priorities of cross-divisional projects follow the process as may be prescribed by the ERS Group. The group members will discuss, as appropriate, the different priorities of cross-divisional projects so these issues can be addressed effectively by the involved stakeholders.

d. Developing ongoing education and training, and recommending resource allocation for individuals involved in the ERA process. The ERS Group may also recommend resources for group training.

e. Recommending changes or additions to ERS policy and procedure.

f. Meet regularly.
3. FORMULATING THE ERS FRAMEWORK

The Six-Step Process

The ERS is a six-step process\(^1\) that consists of the following:

Step 1. Determine the sectors that are economically relevant to your bank

Step 2. Determine what is environmentally relevant to your bank

Step 3. Identify and define the overlaps between what are economically and environmentally relevant to the bank

Step 4. Determine and define the issues/questions involved in environmental risk assessment in the bank

Step 5. Design and structure the decision tree

Step 6. Deal with environmental risks

\(^1\) Figge, Frank, EU Study B: Environmental Aspects in Bank Lending Decisions, Sustainable Research Institute, University of Leeds, 2005.
STEP 1
What is economically relevant?

STEP 2
What is environmentally relevant?

STEP 3
Where are the overlaps?

STEP 4
What are the issues/questions?

STEP 5
How can we structure the decision tree?

STEP 6
How can we deal with the environmental risk?
The details of each step in this process are discussed in the succeeding sections on Actions 1-6.

**Step 1  Determine what is economically relevant to your bank**

1. **Objective:** This action is intended to determine which sectors and activities are relevant to your bank for it to be able to concentrate its lending operations on the most economically relevant sectors.

2. **Approach:** A table of economic sectors using an internationally accepted sector classification is provided for reference (*Table 1*). The list may, however, vary depending on country specifics.

Determine and establish first the economic relevance for the bank of the different sectors of the economy, as listed.

Focus on sectors that are relevant for the bank. For this purpose, you may have to trace back from the bank’s data files its loan portfolio mix in order to understand which sectors of the economy the bank is lending money to.

A list of all possible sectors and activities that the bank may be engaged in is shown in *Table 1*. The members of the ERS Group should determine how the loan portfolio of their respective banks is spread across these activities. This should not be based on the number of clients the bank has in each sector but on the percentage of money that is being loaned out to each sector or activity.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Agriculture, hunting and forestry</td>
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<tr>
<td>B</td>
<td>Fishing</td>
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<tr>
<td>C</td>
<td>Mining and quarrying</td>
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<tr>
<td>D</td>
<td>Manufacturing</td>
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<td>E</td>
<td>Electricity, gas and water supply</td>
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<td>F</td>
<td>Construction</td>
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<tr>
<td>G</td>
<td>Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods</td>
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<tr>
<td>H</td>
<td>Hotels and restaurants</td>
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<tr>
<td>I</td>
<td>Transport, storage and communications</td>
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<td>J</td>
<td>Financial intermediation</td>
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<td>K</td>
<td>Real estate, renting and business activities</td>
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<td>L</td>
<td>Public administration and defence; compulsory social security</td>
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<td>M</td>
<td>Education</td>
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<td>N</td>
<td>Health and social work</td>
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<tr>
<td>O</td>
<td>Other community, social and personal service activities</td>
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<tr>
<td>P</td>
<td>Activities of private households as employers and undifferentiated production activities of private households</td>
</tr>
<tr>
<td>Q</td>
<td>Extraterritorial organizations and bodies</td>
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</table>
Step 2  Determine what is environmentally relevant to your bank

1. **Objective:** This action is designed to identify what activities/sectors are environmentally sensitive to the bank, the purpose of which to be able to concentrate only on the most environmentally relevant sectors for your bank.

2. **Approach:** This action contains three basic steps. The first step requires the preparation of a list of existing environmental problems relevant in your markets. The second is to relate these environmental problems to the sectors of the economy that: (a) contribute to these problems, or (b) are affected by these problems. You will find a generic list of environmental problems that can be used for reference in Table 2.
### Table 2.

#### Environmental Problems

A rather long list

<table>
<thead>
<tr>
<th>Acidification</th>
<th>Nuclear accidents</th>
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<tr>
<td>Bioaccumulation (metals, POCs)</td>
<td>Nuclear waste</td>
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<tr>
<td>Changes in hydrological regime</td>
<td>Occupational health</td>
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<tr>
<td>Climate change</td>
<td>Oil spills</td>
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<td>Coastal erosion</td>
<td>Persistent air toxics</td>
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<tr>
<td>Conservation of threatened species</td>
<td>Pests and locusts</td>
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<tr>
<td>Desertification</td>
<td>Resources and quality of groundwater</td>
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<tr>
<td>Direct pollution (discharges, dumping) to sea</td>
<td>Risks of biotechnology</td>
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<td>Draining wetlands</td>
<td>Riverine inputs into seas</td>
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<td>Energy security</td>
<td>Sea-level rise</td>
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<td>Eutrophication of surface waters</td>
<td>Seismic activity, volcanoes</td>
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<td>Floods, droughts and storms</td>
<td>Shift of biogeographical zones</td>
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<td>Food security</td>
<td>Shortage of industrial raw materials</td>
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<td>Forest degradation</td>
<td>Societal health</td>
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<td>Fragmentation and destruction of habitats</td>
<td>Soil and resource contamination</td>
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<tr>
<td>Growing vulnerability of complex systems</td>
<td>Soil contamination from waste disposal</td>
</tr>
<tr>
<td>Hazardous waste (transport and storage)</td>
<td>Soil erosion</td>
</tr>
<tr>
<td>Industrial accidents</td>
<td>Stratospheric ozone depletion, increasing UV</td>
</tr>
<tr>
<td>Intensification of land use</td>
<td>Stress and degradation due to tourism</td>
</tr>
<tr>
<td>Introduction of new organisms</td>
<td>Thermal pollution of waters</td>
</tr>
<tr>
<td>Lack of water supply</td>
<td>Tropospheric ozone increase and episodes</td>
</tr>
<tr>
<td>Landscape modification</td>
<td>Urban air quality</td>
</tr>
<tr>
<td>Loss of agricultural land</td>
<td>Urban waste</td>
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<tr>
<td>Loss of biodiversity and genetic resources</td>
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<td>Loss of cultural heritage</td>
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<tr>
<td>Management of large rivers and lakes</td>
<td></td>
</tr>
<tr>
<td>Microbiological pollution of surface water</td>
<td></td>
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<tr>
<td>Natural radioactivity (radon)</td>
<td></td>
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<tr>
<td>Nature conservation and sensitive ecosystems</td>
<td></td>
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<tr>
<td>Noise</td>
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<tr>
<td>Non-ionising radiation</td>
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</table>
The third step is to classify each borrower into the sector in the list earlier prepared. Once a borrower has been identified as being environmentally sensitive, different possibilities exist. Most lenders will, as a result, analyze the environmental risks in greater detail. Some banks operate a one-step process while others stagger their approach into two steps or more. The idea is once again to adjust costs and efforts according to the exposure of the borrower to environmental risks.

**TABLE 3.**

<table>
<thead>
<tr>
<th>Sector/Client/Activity</th>
<th>Issue</th>
<th>Downward pressure on output</th>
<th>Downward pressure on prices</th>
<th>Upward pressure on investments</th>
<th>Downward pressure on collateral</th>
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</table>
Step 3 Identify and define the overlaps between what sectors are economically and environmentally relevant to the bank

1. **Objective**: This step will compare the two lists of economically important sectors and environmentally-sensitive sectors/activities and identify the overlapping sectors/activities. By undertaking this step, this action will identify and determine the priority sectors of importance to the bank at the present time.

2. **Approach**: After undertaking Actions 1 and 2 above, the next action to take is to identify and determine which among the sector-specific activities in the spectrum of the borrower’s company operations are both economically and environmentally relevant. Using colored crayons, shade the relevant sectors considering your bank’s current loans and investments profile.

After doing the shading, you can now distinguish the sector-activities where the economically relevant-colored shades overlap with the environmentally-colored shades and this will show which sectors are relevant both economically and environmentally. The sector-activities where the overlaps are located will become the priority areas of concern of the bank for delivery of corporate lending programs and sustainable finance products under the project finance packages of the bank. Please refer to ERS Table 3, Environmental Problem Matrix.

For example, under Action 1, if it was found out that more than 50% of the loan portfolio have been devoted to fishing, aquamarine resources and agriculture and are identified as important sectors to the bank due to the amount of finances already invested in bank loans for these sectors, then these sectors are considered as economically relevant to the bank.
On the other hand, under Action 2, if water pollution, acidification, and desertification are among the environmentally-relevant issues to the bank, then a serious look on these sectors would be in order.

Please note however that the results of undertaking Actions 1 to 3 may vary across different time periods as the composition of the bank’s loan and investment portfolio also changes over time. The type and range of environmental problems (shown on the upper right hand column titles above) may differ from one to another. There is a long list of possible environmental problems to be addressed by each bank’s environmental report depending on the composition of its loan portfolio at any given time.

**Step 4**

Determine and define the issues/questions involved in environmental risk management in the bank

1. **Objective**: This action provides the opportunity to carefully examine and analyze the issues and questions that are likely to be raised when discussing the ERS concerns. Thus, this action is designed to define and understand the potential problems and issues that should be anticipated when the ERS Group discusses with senior management executives, the bank’s customers-clients, and stakeholders.

2. **Approach**: The Bank’s designated ERS team leader convenes the designated members of the ERS Group to review and discuss the anticipated problems and issues in implementing the ERS process with due consideration of the bank’s work environment, lending programs, and other financial services within the overall context of the bank’s internal and external environment.
The discussions will then lead to the preparation of a comprehensive listing of all identified potential problems and concerns related to the ERS process.

An indicative listing of anticipated issues and questions related to the ERS process is shown below.

2.1  Policy concerns

• What is the link between the relevant economic sector and the environmental problems identified above?

• What kind of environmental risks are there in the current loan portfolio? Are they direct risks, reputational risks or indirect risks? Systematic or unsystematic risks?

• How will the bank treat and deal with these risks? The options are:
  (a) refuse to lend money
  (b) do risk-adjusted pricing
  (c) ask for collaterals or guarantees to reduce the economic risks (but environmental impacts are not reduced)
  (d) lending subject to terms and conditions, and
  (e) monitoring of environmental risk.

• What can the bank do with bad environmental risks?
2.2 Implementation issues

Sample issues related to refusing to lend money:
• Are we talking about all forms of agriculture or only parts of agriculture?
• How important is agriculture for our portfolio?
• Are we diversifying enough without agriculture in our portfolio, i.e., can we screen out this sector?

Sample issues related to risk-adjusted pricing:
• What is our competitive environment, i.e., can we set a higher interest rate?
• Are we able to price the environmental risk?
• Is there political pressure on our lending policy?

Sample issues related to collaterals and guarantees:
• Is there a link between the environmental risk of the farming operations and the collaterals/guarantees? Example: Is the farmer handling substances that might lead to a contamination of the ground or water table?

How safe are collaterals? Can we enforce guarantees and collaterals?

Sample issues related to lending subject to terms and conditions:
• Are we able to impose terms and conditions?
• Can we enforce/check terms and conditions?
• Do we know which terms and conditions to impose?

Issues related to monitoring:
• Is it economically sustainable to monitor our debtors?
• Is it culturally acceptable to monitor our debtors?
Step 5

How can we structure the decision tree?

Banks use some kind of a decision tree to decide if environmental aspects should be considered (for a generic decision tree of this kind see Figure 3). The objective of this process is to use specialized questionnaires/criteria or to call in specialists only in the most relevant cases.
1. **Objective:** This action will enable the bank officers to identify and review the ways by which they can address environmental risks. Banks can address environmental risks in different ways. Among the most important tools are:

- Risk-adjusted Pricing
- Monitoring
- Covenants
- Refusal of Loan
- Portfolio Optimization

2. **Approaches to Risk Analysis**

2.1 **Risk-Adjusted Pricing**

Banks are used to dealing with risks as all bank lending decisions are usually exposed to some degree of risk. Banks face the challenge to price loans accordingly. The agreed interest on a loan consists of many different components. The most important components are:

- The risk free rate of interest
- Other costs
- Profit margin
- Expected net loss (on a portfolio level)
- Unexpected loss (on a portfolio level)

The risk-free rate reflects the time value of money. It is commonly assumed that investors prefer to have money sooner rather than later and the risk free rate reflects this preference. Banks must obviously cover the costs (other than the costs for refinancing) that are linked to the lending decision.
Additionally, banks usually aim to make a profit, which is reflected by the profit margin.

Environmental risks can have an influence on the two components:

- Expected net loss (on a portfolio level)
- Unexpected loss (on a portfolio level)

Banks know that some of their loans will not be paid back in full. Put differently, they expect to lose some money. The amount of money they expect to lose must be priced in. Strictly speaking, this does not constitute a risk from the point of view of the bank. This is once again linked to the differentiation between systematic and unsystematic risks.

A bank that knows that it will lose 1% on average of the loans it gives out due to environmental reasons will add 1% to the interest it agrees with its borrowers. It is unimportant in this context, if each particular loan loses 1% or if the loan portfolio in total loses 1%.

However, some environmental aspects have a systematic nature and environmental risks can therefore not be diversified away entirely. As a consequence, the performance of the loan portfolio cannot be predicted with certainty; there is a risk that there might be unexpected losses. Even if banks do diversify, they are still exposed to this systematic risk. It is commonly assumed that banks, just like investors, are adverse to risk. Banks will therefore demand to be compensated for taking on this risk. This risk will come about whenever there are systematic environmental risks.
Environmental risks can be linked to two out of the five components mentioned above. Pricing risks correctly into lending decisions is at the same time crucial and notoriously difficult. It is important to understand that environmental risks can impact credit pricing in two very different ways.

Risk-adjusted pricing must on the one hand price in expected losses, i.e., the amount of money the banks expects to lose on average. This can be done for each loan in isolation. Risk-adjusted pricing must on the other hand consider the amount of non-diversifiable risk that a loan adds to the loan portfolio of the bank. This is notoriously difficult to do. The analysis of loan applications can thus be done both by looking at individual loan applications as well as by an analysis of the loan portfolio.

It is important to note that risk-adjusted pricing of loans does not reduce the actual amount of environmental risk. However, by giving the corresponding price signals banks can contribute to making sure that companies get the right incentive to reduce environmental risks.

2.2 Monitoring

In some cases environmental risks will develop over time. By reacting timely to an upcoming threat a bank’s environmental exposure to environmental risks can be reduced. It can for example be useful to check regularly if a borrower who exerts an environmentally sensitive activity still complies with all relevant rules and regulations after the loan has initially been approved.
2.3 Covenants

In principle loans can be approved subject to terms and conditions. These terms and conditions are usually called covenants and can cover environmental aspects. It is for example possible that a bank will demand that a borrower trains his personnel with respect to environmental risks. Covenants are a way for banks to help reduce environmental risks.

2.4 Loan refusal

Another possibility for banks is to not grant a loan in response to environmental risks. Obviously, this is something that cannot be done every time there is a risk as most loans are subject to at least some risk. Not granting a loan is an option whenever risk-adjusted pricing cannot be practised.

2.5 Portfolio optimisation

We can distinguish between systematic and unsystematic environmental risks. Unsystematic environmental risks can be diversified. As a result they become expected net losses on a portfolio level. Systematic risks, on the other hand, cannot be diversified away as this is usually due to characteristics that all portfolio elements share.

All companies use for example energy. An increase in energy prices will result in higher costs for all companies thus leading to higher energy prices for all companies. This situation will subsequently lead to a higher systematic risk for the entire portfolio.

This risk can be dealt with both on an individual as well as on a portfolio level. One possibility is to do a portfolio analysis of environmental risks. This portfolio analysis will identify the key environmental characteristics of the environmental risks that an entire portfolio has been exposed to.
PART 3
GUIDEBOOK FOR TRAINERS

Overview: How to use this guidebook

Training Modules

Module 1: Determining economic relevance

Module 2: Determining environmental relevance

Module 3: Identifying and defining the overlaps in economic and environmental relevance

Module 4: Analyzing the questions and issues in environmental risk management

Module 5: Structuring the decision tree

Module 6: Dealing with environmental risks
OVERVIEW

HOW TO USE THIS GUIDEBOOK

This trainers’ guidebook is structured according to the contents of Part II of the ERS Resource Book, particularly on the ERS six-step conceptual framework and process.

The picture below shows the main parts of the guide:

- **STEP 1**
  What is economically relevant?

- **STEP 2**
  What is environmentally relevant?

- **STEP 3**
  Where are the overlaps?

- **STEP 4**
  What are the issues/questions?

- **STEP 5**
  How can we structure the decision tree?

- **STEP 6**
  How can we deal with the environmental risk?
The slides in the subsequent pages are for visual reference only. The actual powerpoint presentation slides are in the CD-ROM that comes with this book. You may modify the presentation slides to suit your own requirements and local context.

Should you wish to do an introductory session on environmental risks in bank lending, what banks in general do about environmental risks and how they analyze these risks, you can get substantial materials for training purposes in Part I of this book. You may also include in this session what your existing policies and practices are as far as environmental risk management is concerned.
MODULE 1
DETERMINING ECONOMIC RELEVANCE

GENERAL INFORMATION

Timeframe : 60 minutes
Material : 1 slide
Setting : Small group discussion

PROCEEDING:

1. Introduction

The main objective of this session is to determine which sectors and activities are relevant to your bank for it to be able to concentrate its lending operations on the most economically relevant sectors.

Introduce the table of economic sectors using an internationally accepted sector classification (slide 1).

Note: The list in the table may vary depending on your local situation.

2. Discussion

Ask participants to determine and establish first the economic relevance for the bank of the different sectors of the economy, as listed.

Note: For this purpose and prior to the session, you may have to trace back from the bank’s data files its loan portfolio mix in order to understand which sectors of the economy the bank is lending money to.
3. Discussion output

The participants should be able to determine how the loan portfolio of the bank is spread across these sectors. Use colored crayons to mark the sectors identified as economically relevant to your bank. You will need this color-coding in the next sessions.

*Note: This should not be based on the number of clients the bank has in each sector but on the percentage of money that is being loaned out to each sector or activity.*

---

**Generic Economic Sector Classification**

- A - Agriculture, hunting and forestry
- B - Fishing
- C - Mining and quarrying
- D - Manufacturing
- E - Electricity, gas and water supply
- F - Construction
- G - Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
- H - Hotels and restaurants
- I - Transport, storage and communications
- J - Financial intermediation
- K - Real estate, renting and business activities
- L - Public administration and defence; compulsory social security
- M - Education
- N - Health and social work
- O - Other community, social and personal service activities
- P - Activities of private households as employers and undifferentiated production activities of private households
- Q - Extraterritorial organizations and bodies
GENERAL INFORMATION

Timeframe : 60 minutes
Materials : 2 slides
Setting : Small Workshop Discussion

PROCEEDING:

1. Introduction

The main objective of this session is to identify what activities/sectors are environmentally-sensitive to the bank, the purpose of which is to be able to concentrate only on the most environmentally relevant sectors for your bank.

Introduce the list of environmental problems (slide 1).

Introduce again, as in Module 1, the table of economic sectors using an internationally-accepted sector classification (slide 2).

Note: The list in the table may vary depending on your local situation.
2. **Discussion**

Ask participants to determine and establish the environmentally-sensitive sectors for the bank from the list.

*Note: You may have to prepare beforehand a list of existing environmental problems relevant in your markets, with slide 1 as a basis.*

3. **Discussion output**

The participants should be able to determine what sectors are environmentally-sensitive to the bank. Use colored crayons to mark the sectors identified as environmentally sensitive to your bank. You will need this color-coding scheme in the next sessions.

*Note: Once a sector has been identified as being environmentally sensitive, different possibilities exist. Most lenders will, as a result, analyze the environmental risks in greater detail. Some banks operate a one-step process while others stagger their approach into two steps or more. The idea is once again to adjust costs and efforts according to the exposure of the borrower to environmental risks.*
Environmental problems
A rather long list

Acidification
Biomagnification (metals, POCs)
Changes in hydrological regime
Climate change
Coastal erosion
Conservation of threatened species
Desertification
Direct pollution (discharges, dumping) to sea
Draining wetlands
Energy security
Eutrophication of surface waters
Floods, droughts and storms
Food security
Forest degradation
Fragmentation and destruction of habitats
Growing vulnerability of complex systems
Hazardous waste (transport and storage)
Industrial accidents
Intensification of land-use
Introduction of new organisms
Lack of water supply
Landscape modification
Loss of agricultural land
Loss of biodiversity and genetic resources
Loss of cultural heritage
Management of large rivers and lakes
Microbiological pollution of surface water
Natural radioactivity (radon)
Nature conservation and sensitive ecosystems
Noise
Non-ionising radiation
Nuclear accidents
Nuclear waste
Occupational health
Oil spills
Persistent air toxics
Pests and locusts
Resources and quality of groundwater
Risks of biotechnology
Rheostatic inputs into seas
Sea-level rise
Seismic activity, volcanoes
Shift of biogeographical zones
Shortage of industrial raw materials
Socio-cultural health
Soil and groundwater contamination
Soil contamination from waste disposal
Soil erosion
Stratospheric ozone depletion, increasing UV
Stress and degradation due to tourism
Thermal pollution of waters
Tropospheric ozone increase and episodes
Urban air quality
Urban waste
Waste disposal
Waste production

Generic Economic Sector Classification

A - Agriculture, hunting and forestry
B - Fishing
C - Mining and quarrying
D - Manufacturing
E - Electricity, gas and water supply
F - Construction
G - Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
H - Hotels and restaurants
I - Transport, storage and communications
J - Financial intermediation
K - Real estate, renting and business activities
L - Public administration and defence; compulsory social security
M - Education
N - Health and social work
O - Other community, social and personal service activities
P - Activities of private households as employers and undifferentiated production activities of private households
Q - Extraterritorial organizations and bodies
MODULE 3

IDENTIFYING AND DEFINING THE OVERLAPS IN ECONOMIC AND ENVIRONMENTAL RELEVANCE

GENERAL INFORMATION

Timeframe : 60 minutes  
Materials : 2 slides  
Setting : Small Workshop Discussion

PROCEEDING:

1. Introduction

The main objective of this session is to compare the two lists derived from Modules 1 and 2, i.e., the economically important sectors and environmentally sensitive sectors/activities, and identify the overlapping sectors/activities. By undertaking this step, you will be able to define and determine the priority sectors of importance to the bank at the present time.

Introduce again, as in Module 1, the table of economic sectors using an internationally accepted sector classification (slide 1).

Note: The list in the table may vary depending on your local situation

2. Discussion

Ask participants to determine and establish the overlaps between the economically relevant and environmentally sensitive sectors for the bank from the list (through color coding).
Note: The sector activities where the overlaps are located will become the priority areas of concern of the bank in the delivery of corporate lending programs.

3. Discussion output

The participants should be able to determine what sectors are economically relevant and environmentally sensitive to the bank. You can also extend this process by reviewing each borrow-client in the bank by using the Environmental Risk Matrix in slide 2.

Note: The results of undertaking steps 1 to 3 may vary across different time periods as the composition of the bank’s loan and investment portfolio also changes over time. The type and range of environmental problems may differ from one to another. There is a long list of possible environmental problems to be addressed by each bank’s environmental report depending on the composition of its loan portfolio at any given time. The main objective of this session is to identify what activities/sectors are environmentally-sensitive to the bank, the purpose of which is to be able to concentrate only on the most environmentally relevant sectors for your bank.
### Generic Economic Sector Classification

<table>
<thead>
<tr>
<th>Sector</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Agriculture, hunting and forestry</td>
</tr>
<tr>
<td>B</td>
<td>Fishing</td>
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<tr>
<td>C</td>
<td>Mining and quarrying</td>
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<tr>
<td>D</td>
<td>Manufacturing</td>
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</tr>
<tr>
<td>Q</td>
<td>Extraterritorial organizations and bodies</td>
</tr>
</tbody>
</table>

### Environmental Risk Matrix

<table>
<thead>
<tr>
<th>Sector/client/activity</th>
<th>Issue</th>
<th>Downward pressure on output</th>
<th>Downward pressure on prices</th>
<th>Upward pressure on costs</th>
<th>Upward pressure on investments</th>
<th>Collateral/Guarantee</th>
<th>Downward pressure on collateral</th>
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</table>
GENERAL INFORMATION

Timeframe : 60 minutes
Materials : 1 slide
Setting : Small Brainstorming Session

PROCEEDING:

1. Introduction

The main objective of this session is to provide the opportunity for the participants to carefully examine and analyze the issues and questions that are likely to be raised when discussing the ERS concerns.

2. Discussion

The discussion will afford the participants to review and discuss the anticipated problems and issues in implementing the ERS process with due consideration of the bank’s work environment, lending programs, and other financial services within the overall context of the bank’s internal and external environment.

The discussions will then lead to the preparation of a comprehensive listing of all identified potential problems and concerns related to the ERS process. An indicative listing of anticipated issues and questions related to the ERS process is shown here.
2.1 Policy concerns

• What is the link between the relevant economic sector and the environmental problems identified above?

• What kind of environmental risks are there in the current loan portfolio? Are they direct risks, reputational risks or indirect risks?

• Systematic or unsystematic risks?

• How will the bank treat and deal with these risks?

   The options are:
   (a) refuse to lend money
   (b) do risk-adjusted pricing
   (c) ask for collaterals or guarantees to reduce the economic risks (but environmental impacts are not reduced)
   (d) lending subject to terms and conditions
   (e) monitoring of environmental risk

• What can the bank do with bad environmental risks?

2.2 Implementation Issues

Sample issues related to refusing to lend money:

• Are we talking about all forms of agriculture or only parts of agriculture?
• How important is agriculture for our portfolio?
• Are we diversifying enough without agriculture in our portfolio, i.e., can we screen out this sector?

Sample issues related to risk-adjusted pricing
• What is our competitive environment, i.e., can we set a higher interest rate?
  • Are we able to price the environmental risk?
  • Is there political pressure on our lending policy?

Sample issues related to collaterals and guarantees:
  • Is there a link between the environmental risk of the farming operations and the collaterals/guarantees? Example: Is the farmer handling substances that might lead to a contamination of the ground or water table?
  • How safe are collaterals? Can we enforce guarantees and collaterals?

Sample issues related to lending subject to terms and conditions:
  • Are we able to impose terms and conditions?
  • Can we enforce/check terms and conditions?
  • Do we know which terms and conditions to impose?

Issues related to monitoring:
  • Is it economically sustainable to monitor our debtors?
  • Is it culturally acceptable to monitor our debtors?
3. Discussion output

Ask participants to determine and establish the overlaps between the economically relevant and environmentally sensitive sectors for the bank from the list (through color coding).
MODULE 5

STRUCTURING THE DECISION TREE

GENERAL INFORMATION

Timeframe : 60 minutes
Materials : 1 slide
Setting : Small Brainstorming Session

PROCEEDING:

1. Introduction

The main objective of this session is to use specialized questionnaires or criteria to develop some kind of a decision tree such as the one shown in slide 1.

Note: Banks use some kind of a decision tree to work out what environmental aspects should be considered and how they fit in into their credit process. These criteria can also include a provision to call in specialists only in the most relevant cases.

2. Discussion

With slide 1 as the template, ask the participants to review the questions/criteria provided, with the aim of coming up with a decision tree that is relevant and useful for your institution.
SLIDE 1

Loan Application

The company is in an environmentally sensitive sector and/or the company is conducting environmentally dangerous activities and/or the company is situated in a dangerous region, etc.

Additional questions (typically in the form of a questionnaire)

Based on the answers on the questionnaire:
- The environmental risk can be considered to be small/well managed
- Yes
- No

In depth analysis, for example in the form of site visits

The environmental risk can be considered to be small/well managed

Refusal of loan application

Environmentally differentiated loan application (e.g., risk-adjusted pricing, covenants)

<< Normal loan application >>
1. Introduction

The main objective of this session is to enable bank officers to identify and review the ways by which they can address environmental risks in their own institution.

*Note: Banks can address environmental risks in different ways. Among the most important tools are: risk-adjusted pricing, monitoring, covenants, refusal of loan, and portfolio optimization.*

2. Discussion

Ask participants to read and discuss “What Can Banks do about Environmental Risks in the Lending Process?” which can be found in Part I of the ERS Resource Book.
3. Discussion output

The participants should be able to develop and adopt within the bank some kind of a policy matrix which covers environmental risks that it encounters in its lending process and the concomitant mechanism or tool to mitigate these risks.