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Working Party on Global and Structural Policies

MULTILATERAL ENVIRONMENTAL AGREEMENTS AND PRIVATE INVESTMENT

Business Contribution to Addressing Global Environmental Problems

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FOREWORD

At its meeting in November 2003, the Working Party on Global and Structural Policies (WPGSP) agreed to undertake work on the linkages between selected MEAs and private investment activities. This work would have the following outputs:

- this analytical background report; and
- an experts workshop in 2005, involving representatives from governments, MEA secretariats and implementing agencies, business, civil society organisations, academia and other stakeholders.

The objective of this work is to draw conclusions for improved coherence between MEA and investment policy goals. More concretely, the conclusions could draw lessons from experience on how to maximise the contribution of the private sector towards the achievement of global environmental goals by supporting the implementation of MEAs. This report is part of OECD work on Investment and Environment and will contribute to the implementation of the OECD Environmental Strategy for the First Decade of the 21st Century, which encourages the Organisation to "contribute to analysis of key issues and options for the implementation of MEAs".

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It has benefited from comments from Delegates to the Working Party on Global and Structural Policies (WPGSP) and colleagues from the OECD Secretariat. Valuable input has also been provided by Vitaly Matsarski and colleagues from the UNFCCC Secretariat, Markus Lehmann and colleagues from the CBD Secretariat, Satu Ravola and colleagues from the UNCCD Secretariat, as well as Rajendra Shende and Jim Curlin from the UNEP DTIE OzonAction Programme (Montreal Protocol implementing agency).

This report does not necessarily represent the views of either the OECD or its Member countries. It is published under the responsibility of the Secretary General.

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LIST OF ACRONYMS

AAU	Assigned Amount Unit
AIJ	Activities Implemented Jointly
ANER	National Renewable Energy Agency (Tunisia)
BCM	Bromochloromethan
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEITs	Countries with Economies in Transition
CERs	Certified Emission Reductions
CERES	Coalition for Environmentally Responsible Economies
CFC	Chlorofluorocarbon
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on Migratory Species
CO_2	Carbon Dioxide
COP	Conference of the Parties
DTIE	UNEP Division of Technology, Industry and Economics
EBFP	Environmental Business Finance Program
EFIC	Export Finance and Insurance Corporation
EGTT	Expert Group on Technology Transfer
EIA	Environmental Impact Assessment
EPRI	Electric Power Research Institute
ERU	Emission Reduction Unit
ETS	Emissions Trading Scheme
EU	European Union
EUR	Euro
FDI	Foreign Direct Investment
FIELD	Global Mechanism – Financial Information Engine on Land Degradation
GEF	Global Environment Facility
GHG	Greenhouse Gas
GM	Global Mechanism
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HBFC	Hydrobromofluorocarbon
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
ICC	International Chamber of Commerce
ICM	Integrated Crop Management
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
INBIO	Instituto Nacional de Biodiversidad
IPM	Integrated Pest Management
IPO	Initial Public Offering
IPP	Independent Power Production Office

ISO	International Organization for Standardization
JI	Joint Implementation
MDI	Metered-dose Inhaler
MEA	Multilateral Environmental Agreement
MF	Multilateral Fund
MNE	Multinational Enterprise
MOP	Meeting of the Parties
MSIP	Municipal Solar Infrastructure Project
NGO	Non-governmental Organisation
ODA	Official Development Assistance
ODS	Ozone-depleting Substance
OECD	Organisation for Economic Co-operation and Development
PRODEEM	Programa de Desenvolvimento Energético de Estados e Municípios
R&D	Research and Development
RTL	Reduced Tillage Linkages
SBSTA	Subsidiary Body for Scientific and Technological Advice
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SMEs	Small and Medium Enterprises
SRAP	Sub-regional Action Program
STEG	Société Tunisienne de l'Electricité et du Gaz
TEAP	Technology and Economic Assessment Panel
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNU	United Nations University
USD	US Dollar
WBCSD	World Business Council on Sustainable Development
WHC	World Heritage Convention
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

EXECUTIVE SUMMARY

Environmental objectives under MEAs and private investment can reinforce each other.

Environmental and investment policies have the potential to reinforce their respective goals while promoting the broader objective of sustainable development. Multilateral Environmental Agreements (MEAs) aim at changing the collective behaviour of governments, private investors, and other stakeholders in order to achieve certain environmental goals. They are also an important part of the international context in which investment takes place. Therefore, MEAs promoting investment objectives and investment activity in support of MEA implementation play an important role in making investment and environment policies compatible.

The successful implementation of MEAs cannot be achieved by public efforts alone, but also relies on private sector contribution. Therefore, MEAs need to be designed in a way that promotes private sector involvement. Environmentally-friendly investments represent an opportunity for environmental policies and the private sector: while contributing to the goals of MEAs they may lead to enhanced economic returns. The report aims at deepening the understanding of this potential. It examines the main areas of inter-linkage between MEAs and private investment activity focusing on the three Rio Conventions and the Montreal Protocol.

Business opportunities and incentive measures under MEAs stimulate private sector commitment.

In order to attract private investment that supports the objectives of MEAs, the overall conditions for the private sector need to be adequate. MEA negotiators have often taken the drivers for private investment into account, *e.g.* concerns for profit and competitiveness, when designing initiatives and instruments under MEAs. However, it is up to each government to set the right framework for private economic activity: MEAs will only be able to encourage private investments that contribute to their objectives if they allow the investors to pursue their economic goals.

While the legal force of commitments and obligations under MEAs plays a certain role, there are also other means to stimulate private sector engagement in MEA implementation. As MEAs are being implemented, various business opportunities may arise by, for instance, opening up new markets for environmentally-friendly products or technologies. Incentive measures which can be promoted by MEAs and implemented by national governments are another important element for attracting private investment contributing to MEA goals.

Independent of any externally established incentive measures, many enterprises go voluntarily beyond legal requirements under MEAs. A growing number of enterprises and industries are responding in advance of, or in addition to, host government mandatory requirements in addressing environmental aspects of their international operations through voluntary approaches. By signing up to voluntary commitments, private investors may therefore contribute to achieving MEAs' goals.

Financial mechanisms play a crucial role in fostering environmentally-friendly private investment.

Financial mechanisms are important to attract private investments. They create incentives for investors, facilitate public-private partnerships, develop innovative financial tools, contribute to removing obstacles

to the effective use of resources, etc. Provisions dealing specifically with financial resources and mechanisms play a prominent role in many MEAs. The implementation of these provisions is crucial to facilitate and channel investments to achieve the goals of MEAs.

Private investment can contribute to increased capacity.

Capacity, whether institutional or human, is essential to target investments that promote environmental goals pursued under MEAs, to establish an adequate investment climate, and to ensure that investment and environmental goals are mutually supportive. Attracting financial resources for long-term capacity-building programs and activities is as essential as ensuring coordination between the different stakeholders involved (intergovernmental and non-governmental organisations, enterprises, etc.).

Private investors can promote public education and participation that facilitate implementation of MEAs.

Achieving a minimum level of education is important for a country both to attract private capital flows and to maximise human capital spillovers, *e.g.* from the presence of foreign enterprises. For the successful implementation of MEAs, adequate education and training, as well as participation and awareness of employees and the local population in general are vital, and private investment can play a major role in contributing to their achievement.

The development and transfer of environmentally sound technologies relies largely on private investment.

Private companies often dispose of a large research capacity to produce advanced and environmentally-friendly technologies, and of the appropriate know-how, which can be at the core of technology transfer. Where correctly implemented, appropriate technology can help improve environmental performance and alleviate poverty. At the same time, owners of environmentally-friendly technologies may see their markets hugely expanded and new fields for investments opened, while domestic investors in recipient countries may increase their capacity to improve existing production methods or develop new ones by gaining access to such technologies. Engaging the business sector in joint research activities and technology transfer is therefore important for the successful implementation of MEAs.

Under many MEAs, private investors need to assess the environmental impacts of their activities.

Environmental assessment is an important investment-related tool contributing to the achievement of environmental protection objectives, including those set out in MEAs. It is increasingly seen as a key part of the decision-making process of private and public investors and in many countries, investors have to assess the environmental impacts of projects prior to their approval. Financial institutions, including private investment banks and export credit agencies, are increasingly including environmental considerations in their financial risk assessment and decision-making processes.

MEAs need to explore synergies with respect to private sector contributions.

Synergies between MEAs have been explored in relation with issues such as capacity building, technology transfer and financial support. However, so far, few efforts have focused on exploring potential synergies to enhance the role of the business sector in supporting MEA goals. It would therefore be helpful to share experiences and best practices among MEA Secretariats to take better advantage of such synergies.

Introduction

Environmental and investment policies have the potential to reinforce each other's goals while promoting the broader objective of sustainable development. Among other things, this means ensuring that investment activities support environmental objectives whenever possible. In turn, it also implies implementing environmental policies in such a way that they actively contribute to promoting investment.[1]

Multilateral Environmental Agreements (MEAs) play an important role in reaching the environmental goals agreed upon in Agenda 21 and further emphasised at the Johannesburg World Summit on Sustainable Development (WSSD) and in its Plan of Implementation. They are an important part of the international context in which investment takes place. Therefore, the role of MEAs in promoting investment objectives, and the role of investment activity in support of MEA objectives are important elements of making investment and environment policies compatible.[2]

The successful implementation of most MEAs cannot be achieved by public efforts alone, but also relies on private sector contribution. Environmentally-friendly private investments represent an opportunity for private investors: while contributing to the goals of MEAs, they may lead to enhanced economic returns. In order to strengthen this potential, it is important to explore the linkages between MEAs and private investment in more detail.

This report therefore examines the main links between MEAs and private investment activity and describes how some of the issues addressed by MEAs relate to, or promote private investment which contributes to their respective goals. The report focuses on the three Rio Conventions – the *United Nations Framework Convention on Climate Change* (UNFCCC)[3], the *Convention on Biological Diversity* (CBD)[4]

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1. OECD (2001a), *Policies to Enhance Sustainable Development*. Much has already been written on the relationship between investment and environment. Research covers such topics as: the scale, technology and structural effects on the environment of foreign direct investment; the environmental implications of cross-border corporate environmental management; and the 'pollution haven', 'pollution halo' and 'regulatory chill' hypotheses arising from policy-based competition for investment. For a general overview of these linkages, see OECD (2001b), *Environmental Benefits of Foreign Direct Investment: A Literature Review*; OECD (2001c), *Environmental Issues in Policy-Based Competition for Investment: A Literature Review*.

2. The OECD has, in the past, undertaken some work looking at MEAs and investment issues. For example, during OECD negotiations of the Multilateral Agreement on Investment (MAI) between 1995 and 1998, the OECD Secretariat examined the relationship between the proposed MAI and four MEAs. See OECD (1998a), *Relationships Between the MAI and Selected Multilateral Environmental Agreements (MEAs)*. This report focused on the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the United Nations Framework Convention on Climate Change.

3. The United Nations Framework Convention on Climate Change (UNFCCC), signed on 09.05.1992, entered into force on 21.03.1994. The UNFCCC is an international agreement designed to reduce the threat of climate change. As its name implies, it is a framework convention that sets forth only general obligations. To-date, 188 countries, including all OECD members, and the European Community have ratified the Convention. <http://unfccc.int>.

   The Kyoto Protocol to the United Nations Framework Convention on Climate Change, adopted in 1997, entered into force on 16.02.2005. Under the Kyoto Protocol, Parties are committed to achieve quantitative targets for decreasing their GHG emissions. The scope of this report does not extend to the Kyoto Protocol.

and the *United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa* (UNCCD)[5] – as well as on the *Montreal Protocol on Substances that Deplete the Ozone Layer*[6].

This report has three parts and ends with some conclusions and suggestions for further research. Part I looks at different forms of private investment and explores how they relate to the environment. It then takes a closer look at the potential of MEAs and private investment to reinforce their respective goals and explores how and under what circumstances they can impact on one another. This part of the report also looks at private sector contribution to MEA implementation and explores the impact of incentive measures and business opportunities under MEAs, and voluntary commitments by private investors in support of MEA implementation.

Part II describes financial mechanisms under selected MEAs, as well as the ways in which they promote private sector contribution to MEA goals.

Part III focuses on specific issues dealt with in MEAs in which private investment may play a role. These include capacity building; education and training, participation and awareness; access to, transfer, and diffusion of technology; research, technical and scientific co-operation; and environmental assessment. This part of the report also describes existing efforts to explore potential synergies among different MEAs, especially with regard to private sector involvement.

The text is based on existing literature and on information drawn from websites. It also contains original research and first-hand information provided, *inter alia*, by MEA Secretariats and implementing agencies. In addition, the report includes numerous case study examples to illustrate the actual practice.

Therefore, it only briefly describes the investment mechanisms adopted in the framework of the Protocol, but does not analyse these issues in detail.

4. The Convention on Biological Diversity (CBD), signed on 05.06.1992, entered into force on 29.12.1993. The CBD's objectives are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilisation of genetic resources. Currently, 188 countries, including most OECD members, are Parties to the CBD. <www.biodiv.org>.

5. The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD), signed on 17.06.1994, entered into force on 26.12.1996. The UNCCD's main objectives are to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international co-operation and partnership arrangements, with a view to contributing to the achievement of sustainable development in affected areas. Currently 191 countries, including all OECD members, are Parties to the UNCCD. <www.unccd.int>.

6. The Montreal Protocol on Substances that Deplete the Ozone Layer, concluded on 16.09.1987, entered into force on 01.01.1989, pursuant to the framework Vienna Convention for the Protection of the Ozone Layer. The Montreal Protocol's main objective is to set production and consumption limits for ozone-depleting substances like CFCs, with a view to their total phase out. Currently 186 countries, including all OECD members, are Parties to the Montreal Protocol. <www.unep.org/ozone/montreal.shtml>.

PART I: MEAS AND PRIVATE INVESTMENT: GENERAL LINKS

Private investment and the environment

This section defines various types of private investment and explains their main linkages with the environment.

Private investment and related capital flows

In this report, 'private investment' mostly refers to investments by industry and other parts of the business sector. The fundamental goal of private businesses, whether engaged in domestic or foreign activities, is to make profitable investments. They generally do so by maximising the present value of the risk-adjusted returns on their investments. In practice this implies that investors weigh in three factors: (i) the expected profitability of a given project; (ii) the predictability and perceived unquantifiable risk attached to the project; and (iii) the speed with which the hoped-for benefits are likely to accrue. The degree of predictability, the profitability and the time profile of returns that an investor is likely to accept generally depends on the type of investment under consideration.[7]

Cross-border private investment mostly takes two forms, namely foreign direct investment (FDI) and portfolio investment. For the sake of the present study, it is chosen to consider also commercial credits, which, according to definition, may or may not be considered as investment. Each type varies in its amount and also in its implications on environmental performance since each is susceptible to environmental influence at different points in the investment process.[8]

Foreign direct investment: Typical FDI is the acquisition of a controlling stake in a company outside the investor's home country, and subsequent transactions that change the value of such an asset. FDI is thought to reflect a lasting interest which implies the existence of a long-term relationship between the direct investor and the foreign-invested enterprise as well as a significant degree of influence by the investor on the management of this enterprise. As will be further developed in the following chapters, many of the sectors in which FDI occurs have an impact on the environment and may therefore be linked to MEA goals.[9]

Portfolio investment: The term "portfolio" refers to the combined holdings of diverse financial assets by individuals, companies and institutions (pension funds, mutual funds, insurance companies, etc.). Portfolios may contain a wide variety of investment instruments of which the most common types are equity and debt securities. In the history of international capital flows, portfolio investment has played a

7. Gentry, B. S. (ed) (1998), *Private Capital Flows and the Environment – Lessons from America*.

8. Gentry, B. S. (2000), *Private Capital Flows and climate change: Maximizing private investment in developing countries under the Kyoto Protocol*.

9. WTO (1998), *Working Group on the Relationship between Trade and Investment – Communication from the IMF*; Gentry, B. S. (2000).

key role, but it is generally found to be more volatile than, for instance, FDI. Compared to FDI, it has less direct – but still critical – links to the environment.[10]

Credits: Perhaps the most traditional channel by which private funds move from industrialised to developing countries is direct lending and other credits. Examples include loans from commercial banks to public and private borrowers and non-financial debt such as trade-related credits, including those between related enterprises. As such, private credit covers a wide spectrum of investments, some of which resemble FDI while others are more akin to portfolio equity investments.[11]

Impacts of private investment on the environment

FDI has the most direct connections to environmental performance, as it often goes into production sites, such as mines, lumbering, manufacturing facilities or power plants.[12] Insofar as investment serves to commence new activities or expand existing ones, it is often related to pollution, resource depletion impacts, or environmental damage resulting from secondary effects (*e.g.* along transportation corridors or in new settlements). On the other hand, FDI is also considered as an important factor in any sustainable development strategy since it can improve the environmental performance of a country or region. FDI can have positive effects on the host country as it is often associated with much-needed infrastructure development, technology transfer and human capital formation. Among other things, FDI can result in an improved technological base, better environmental management, environmental training of local stakeholders and increased efficiency of raw material use. At the societal level, FDI has sometimes led to a greater attention to the environmental characteristics of products and a more effective protection of sensitive areas.

The potentially positive effects of FDI are related to the relatively long investment horizon, which makes investors more sensitive to the eventual impact of their actions. Investors must consider all risks over the life of a given project, including environmental risks. Also, among all types of private foreign investment, FDI is the one that provides the most direct path from source to destination and therefore allows the promotion of basic environmental goals. An investor who is directly responsible for, and controlling all business operations, is likely to take environmental factors into account when making decisions.[13]

In contrast, the links between portfolio investment and the environment are often less clear and more complex. First, the time profile is mostly shorter. Portfolio investment in foreign equity can be short-term and highly volatile, making longer-term environmental risks less relevant. The search for quick returns by some investors means that portfolio investors may pull out of a sector or a country overnight, which is very

10. Beenhakker, H. (2001), *The global economy and international financing*; OECD (1998b), *The Environmental Effects of International Portfolio Flows*; OECD (2001d), *OECD Environmental Outlook*.

11. Gentry, B. S. (ed) (1998).

12. Most of the expected environmental effects of FDI are studied by decomposing them into scale effects (expansion of economic output), structural effects (reallocation of production and consumption), and technology effects (technological development and diffusion). In general, scale effects are expected to be negative, while technological and structural effects are expected to be positive (*i.e.* the service FDI flows as opposed to manufacturing FDI). From an analytical perspective, what becomes relevant is the net outcome of the three effects, not the individual parts. OECD (2001b).

13. OECD (1998b); Gentry, B. S. (1999), *Foreign Direct Investment and the Environment: Boon or Bane?*; Gentry, B. S. (2000). For a more detailed discussion on the environmental effects of FDI, especially in regard to the "Race to the bottom", "Regulatory chill", and "Race to the top" hypotheses, see OECD (2001c).

difficult in the case of FDI. Second, portfolio investors influence their investment targets through the cost of capital. Only through initial public offerings (IPOs) and bond placements do investors provide capital directly to companies. Afterwards, bonds are traded in secondary markets where the main channel of influence is a company's unwillingness to contemplate a drop in market valuation if market participants perceive that its environmental performance is blighting its earnings prospects. Third, institutional investors are becoming a dominant force in portfolio investment – though perhaps less so on a cross-border basis. Institutional investors are subordinated to fiduciary obligations to maximise returns and, therefore, do often not take environmental impacts of their investments into account.[14] Finally, accountability for the impacts of portfolio flows, whether environmental in nature or not, is hard to locate. Portfolio investment risks tend to be dispersed across a diverse array of holdings, and the transaction costs of obtaining accurate information about the nature of each investment are high.[15]

There is a direct link to the environment in the case of portfolio investments in the form of environmental funds. "Green" funds have been developed as a way of providing stable funding for environmental protection. These instruments have the potential to create and expand markets for environmental goods and services, by providing financial capital to companies which have a positive impact on environmental quality, human health and the sustainable management of resources. Recipient companies have represented sectors such as clean energy, sustainable forestry and forest products, efficient transportation, water and wastewater treatment, integrated waste management, healthcare, etc. While recognising that public financing is likely to remain an important source of capital for environmental projects, private capital, especially from the financial sector, is now becoming the key player. In recent years, several private financial institutions, *e.g.* ING Group, Triodos Bank, or ShoreBank Group, have established banks for ecological savings and investments focusing on biodiversity markets.[16]

Depending on the type of debt instrument and the kind of project to which the money is lent, the environmental effects of credits vary significantly. In the case of commercial bank loans, the potential environmental impacts of the investment can be anticipated. For example, a loans officer considering extending credit for a mineral extraction project is increasingly likely to inquire about the company's environmental performance and liabilities as part of the "due diligence" on risks of loan repayment. The effort to determine material risks and liabilities that may threaten the expected return on a loan therefore provides a key point for environmental leverage.[17] Commercial credits from multinational enterprises and other large players to their business associates in developing countries are subject to less such checks. However, commercial credits may rise to a level where the involved enterprises become so closely related that any corporate responsibility instruments to which the creditor companies subscribe apply throughout.[18]

14. Gentry, B. S. (ed) (1998); OECD (1998b); Gentry, B. S. (2000).

15. OECD (2001b); OECD (1998b).

16. OECD (2003a), *Harnessing Markets for Biodiversity – Towards Conservation and Sustainable Use*; CFA, Environmental Funds, <http://guide.conservationfinance.org>.

17. OECD (1998b).

18. Gentry, B. S. (2000).

Box 1. **Calls for a stronger role of private investment in addressing global environmental problems**

Governments recognised at the 1992 UN Conference on Environment and Development (UNCED) that implementing the ambitious Agenda 21 programmes required the provision of substantial new and additional financial resources. The UNCED Secretariat, at that time, estimated that over USD 600 billion per year was needed from the international community merely to implement Agenda 21 in developing countries, including USD 125 billion on a grant or concessional basis. However, since 1993 international flows of Official Development Assistance (ODA) have declined and stagnated while, throughout the world, the private sector is playing an increasingly important role in economic as well as environmental activities.

Official flows being far below the level agreed at the International Conference on Financing for Development (Monterrey, Mexico, March 2002), are seen more and more as a lever for domestic as well as foreign private investment. The importance of private flows, particularly FDI, to support national and international development efforts and to help addressing global environmental problems was also emphasised at the World Summit on Sustainable Development (Johannesburg, August/September 2002).

FDI and portfolio flows together make up the largest component of capital flows to developing countries that are most dependent on financial support to meet environmental goals. While there is data on the total level of private investments, it is not generally possible to clearly identify the proportion of these investments that is either associated with better environmental performance in general or spent in support of MEAs. The challenge is to channel more private investment to activities supporting sustainable development efforts in general, and the objectives of MEAs in particular, not only in developing countries but in all countries throughout the world.

Source: IIED (2002), Financing for Sustainable Development, et al. [19].

Main linkages between MEAs and private investment

This section examines various general linkages between MEAs and private investment. It first looks at the potential of MEAs and private investment to reinforce each other: while private investment activity can support MEA goals, MEAs may also promote investment objectives. This section then examines the nature of the commitments set out under MEAs (*e.g.* binding obligations or achievement of general targets) and how these influence private investment. It also explores private sector involvement in MEA processes.

MEAs and private investment: reinforcing their respective goals

MEAs aim at changing the collective behaviour of governments, private investors, and other stakeholders in order to achieve specific environmental goals. Such goals include the protection of endangered animal and plant species through regulation of trade (*Convention on International Trade in Endangered Species of Wild Fauna and Flora*), the protection of the seas, and sustainable management of marine resources (various Conventions regarding protection of the seas, notably the *UN Convention on the Law of the Sea*), or the regulation of movements of wastes (*Basel Convention on the Control of Transboundary Movements of Wastes and their Disposal*). In the case of the Rio Conventions, the broad goals are: to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (*UN Framework Convention on Climate Change*); to

19. *Report of the International Conference on Financing for Development*, <www.un.org/esa/ffd/aconf198-11.pdf>; *Report of the World Summit on Sustainable Development*, <http://ods-dds-ny.un.org/doc/UNDOC/GEN/N02/636/93/PDF/N0263693.pdf?OpenElement>; World Bank (2004), *Global Development Finance – Harnessing Cyclical Gains for Development*; IMF/UNEP/World Bank (2002), *Financing for Sustainable Development*; OECD (1998c), *Foreign Direct Investment and Economic Development.*

conserve biological diversity and the sustainable use of its components (*Convention on Biological Diversity*); and to combat desertification and mitigating the effects of drought (*UN Convention to Combat Desertification*). The *Montreal Protocol on Substances that Deplete the Ozone Layer* aims at reducing the world-wide emissions of certain anthropogenic substances that deplete the stratospheric ozone layer in order to protect human health and the environment.

There is a large potential for MEAs and private investment to support each other's goals. While MEAs depend on private sector contributions in order to achieve their goals, environmentally-friendly private investment has often proven to be economically sustainable as well. Therefore, investing to increase profits and contributing to the solution of global environmental problems are not mutually exclusive. This potential needs to be utilised and largely expanded by using various means to promote private investment and by overcoming existing barriers.

Implementation of MEAs lies with national governments and it is up to each Party to design and implement domestic policies and measures in meeting its commitments under a Convention. An important pre-requisite for attracting private investment in support of MEA implementation is an effective enabling environment, *i.e.* adequate overall conditions. A stable and investor-friendly environment is generally characterised by economic and political stability, an effective judicial system and adequate infrastructure. In contrast, political and macro-economic instability, poorly administered taxation systems, endemic corruption, excessive or uncertain regulations, inadequate infrastructure, limited natural resources, lack of skilled labour and supply-chain capacity, social and civil disruption as well as human rights abuses are commonly seen as deterrents to private investment.[20]

By setting the framework for private economic activity, governments contribute to enabling investments that, in turn, can contribute to environmental goals, including those set out in MEAs.[21] This requires allocating the necessary funds in national budgets in order to develop adequate policies, programmes and regulations; establish new enforcement mechanisms or adapting existing ones; train the people necessary to manage and supervise policies and programmes; and implement other obligations under MEAs, such as reporting, exchange of information, etc.

On the other hand, efforts to further MEA implementation by strengthening legal and institutional frameworks for better environmental governance may also restrict private investment. This may occur when governments change key sectoral policies such as energy, industry and transport policies to integrate environmental objectives. Public authorities may request to disclose any environmental impacts of private sector activities in order to ensure that these activities are fully covered by environmental laws and policies. Some measures, such as environmental impact assessments, may lead to higher costs for private investors.[22] However, MEA negotiators have often taken the drivers for private investment, such as concerns for profit and competitiveness, into account when designing MEAs.

A critical question is how the opportunities for improving environmental performance with support of the private sector can best be captured. To answer this question, the environmental factors that affect investor decision-making have to be considered. For FDI to have long-term positive impacts on the environment, it

20. WBCSD et al. (2002), *Investing for Sustainable Development – Getting the Conditions Right*; IMF/UNEP/World Bank (2002).

21. Gentry, B. S. (2000).

22. WWF (2001), *No investment Agreement within the WTO: Re-directing Investment to Promote Sustainable Development*.

also needs to increase the investors' commercial advantage. In regard to investment in developing countries, for example, this is usually the case if the investor succeeds in either:

- improving access to export markets, such as through the adoption of environmental management systems or the award of product "eco-labels"; or
- increasing productivity, through more efficient use of raw materials; or
- maintaining a "social licence" to operate in the face of local and international pressure from neighbours, NGOs, shareholders, and customers; or
- accessing finance, since international financiers increasingly require environmental risks to be addressed and environmental guidelines to be met; or
- making "environmental" investments, e.g. investments in water systems or cleaner energy production.[23]

The roles and responsibilities of public and private sector parties have evolved: governments are no longer the provider but also the enabler and overseer of services, including environmental services such as water supply and treatment, which are increasingly being provided by private parties. These changes also require putting in place adequate institutions, resources and co-operation mechanisms in order to ensure positive outcomes.[24]

One solution can be new and creative partnerships which ideally involve all stakeholders in order to solve the numerous environmental problems that countries are facing. While, especially in developing and newly industrialising countries, the possibilities open to government development promotion alone are often stagnating, private companies are playing an increasingly important role in the development of these countries. If all stakeholders join forces, solutions are more likely to result in the sustainable protection of the environment with the best partnerships generating economic, ecological and social benefits.

Public Private Partnerships for sustainable development are an important outcome of the WSSD held in Johannesburg in 2002. They are of a "voluntary, 'self-organizing' nature"[25] and can be arranged among any combination of partners, including national governments, regional groups, local authorities, NGOs, international institutions and private sector partners. Such voluntary multi-stakeholder initiatives are intended to complement the intergovernmental commitments and not to be a substitute for them. They are a supplementary means of supporting the Johannesburg Plan of Implementation as well as the goals of MEAs.[26]

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23. Gentry, B. S. (2000).

24. Gentry, B. S. (1998).

25. WSSD, <www.johannesburgsummit.org/html/documents/prepcom4docs/bali_documents/annex_partnership.pdf>

26. GTZ, *Public Private Partnerships*, <www.gtz.de/ppp/english/hintergrund/index.html>; UN, *Partnerships for Sustainable Development*, <www.un.org/esa/sustdev/partnerships/brochure_E.pdf>; Gasser/Walker (2001), *Partnerships in Practice*.

Box 2. **Public Private Partnership to assist in UNFCCC implementation**

In 2002, the governments of one South American, 8 African, 15 European, and 2 Caribbean states; an Italian private company; 2 European NGOs; the Austrian multi-stakeholder platform 'Global Forum on Sustainable Energy'; and 3 intergovernmental organisations jointly created a Public Private Partnership under the leadership of the European Commission. The partnership's goal is to provide adequate, affordable and sustainable energy services in rural, peri-rural and urban areas in order to contribute to climate change mitigation and sustainable development, as well as poverty eradication. This objective contributes to achieving the development goals contained in the Millennium Declaration. The initiative aims at establishing "Energy Access Partnerships" between developing countries, the private sector and civil society to improve access to energy services, in particular for poorer populations. Common efforts can lead to a well co-ordinated and coherent package of existing energy activities and other initiatives. The main objective is to create economic, social and institutional conditions that will enable developing countries' energy needs to be met while abiding by UNFCCC and other MEAs' provisions.

Source: <http://webapps01.un.org/dsd/partnerships/search/partnerships/183.html>.

Targets and obligations under MEAs and their impact on private investment

Under MEAs, governments set out goals and the means to achieve them in a variety of ways, for example, via legal obligations and commitments or through non-binding targets. This, in turn, depends on a variety of factors, including the scientific certainty underlying the environmental impacts that the MEA aims to address.

In the case of the Montreal Protocol, impacts and costs of inaction were obvious when the agreement was negotiated and therefore influenced the design of the Protocol, which contains binding legal commitments and fixed targets. Private sector engagement in implementing the Montreal Protocol has been strong, *e.g.*, in terms of developing financially sound and environmentally sustainable alternatives to the banned substances.

Less scientific certainty existed on the impacts of climate change when the UNFCCC was negotiated. As a result, lack of consensus among negotiators on the cost and implications of inaction led to a convention with no binding legal commitments or fixed targets. The latter were established later, in the Kyoto Protocol. In the cases of the CBD and the UNCCD, the degree of scientific certainty about the cost of inaction was also low. Instead of establishing binding obligations, these MEAs tend to set out their goals by means of non-binding decisions and agreements that are consistent with social preferences. Their role is to provide Parties with information, for instance in the form of guidelines. The goal is to find mutually agreeable targets that will be implemented on a national basis. Private sector involvement in implementing these agreements has been less obvious.

This correlation between the legal force of commitments and interest by the private sector is consistent with the traditional view of firms as maximising returns to shareholders. Investment theory implies that three characteristics are important to investment decisions: irreversibility, uncertainty and optimal timing[27]. These three characteristics interact to determine the optimal decisions of investors. In the case of non-legally binding targets and deadlines, companies may decide to delay their investment (*e.g.* in shifting to environmentally-friendly production methods) if the related costs are weighed against the benefits of waiting for new, more precise and reliable information. This will also include information concerning the

27. Irreversibility: The initial costs of investments are at least partially sunk. Once an investment is made, it cannot be completely recovered. Uncertainty: There is always uncertainty over the future rewards (costs and benefits) from the investment. Optimal Timing: Investments may be postponed if more, or more precise, information is expected in the future.

government's commitment to the policy. In the opposite case of legal obligations and deadlines (even if they lie far ahead), companies start to adjust at an earlier stage because the cost of a hurried, last minute adjustment (though more predictable) is higher. The underlying rationale is that profits will be maximised by a gradual process when investment is costly to implement quickly.[28]

The nature of policies put in place to implement MEAs further shape the environment in which investors, including multinational enterprises and financial institutions, operate. Certain operations may be banned (*e.g.* production and use of, or trade in, certain goods), investments may be subject to stricter requirements (for instance, they may be subject to environmental impact assessment), or become riskier from a financial point of view, thus requiring stricter risk assessments (environmental liability may not be clear).

On the other hand, the implementation of MEAs can positively affect private investment. Provisions regarding the facilitation or channelling of investments present incentives to investors when they permit the involvement of the private sector (*e.g.* by facilitating public-private partnerships); encourage the development of innovative financial mechanisms; or remove obstacles to the more effective use of resources. MEAs also create market opportunities by stimulating the development of new technologies.

Reference to the private sector in MEA processes

Some MEAs, such as the CBD and the UNCCD, explicitly mention the private sector in their text and directly involve it in the implementation process. The texts of the UNFCCC and the Montreal Protocol, on the other hand, do not directly refer to the private sector, nor do they define its role in the implementation processes.

Whether the business sector is addressed in its text or not, each MEA nevertheless implies the involvement of private sector parties in order to make progress in reaching its goals. Indeed, private investment is needed to complement public efforts in contributing to the solution of global environmental problems addressed by MEAs. "Governments cannot make all the investments necessary to achieve a sustainable future."[29]

The private sector was hardly involved in the negotiation process of the UNFCCC and the Convention does not explicitly refer to the role of the business sector in contributing to its goals. However, a large proportion of international investments in emissions reductions is expected to be made by businesses, which are significant emitters of greenhouse gases (GHGs), especially in developed countries.

The increasing dependence on private investment is taken into account in the Kyoto Protocol[30] that acknowledges the role of the business sector. This is clearly reflected, for example, by the growing *de facto* involvement of the private sector in the negotiations for the Clean Development Mechanism (CDM) and the CDM's bottom-up approach that gives a high profile role to enterprises in supporting climate change mitigation. The Kyoto Protocol establishes the so-called "flexible mechanisms"[31] that take into

28. Dixit, A. K./Pindyck, R. S. (1994), *Investment under Uncertainty*; Pindyck, R. S. (2002), *Optimal Timing Problems in Environmental Economics*.

29. Gentry, B. S. (2001), *Research Statement*.

30. See footnote 3.

31. A description of the Flexibility Mechanisms, *i.e.* of the project-based Clean Development Mechanism (CDM) and Joint Implementation (JI), as well as the market-based Emissions Trading, are provided later in this report (see section on "Financial Mechanisms").

consideration the business sector's rationale for action and involvement. The CDM, *inter alia*, provides for building business partnerships between developed and developing countries thus representing an opportunity for all stakeholders to lower greenhouse gas emissions at a reduced cost. It is also intended to facilitate the transfer of technology and know-how to developing countries thus contributing to sustainable development and poverty alleviation.[32]

A growing number of private sector initiatives gives evidence of the increased involvement of the business sector in the further development of the Convention and the Kyoto Protocol. Business associations organised several side events, for example, at the 9th Conference of the Parties (COP) of the UNFCCC in Milan in 2003, which reflected the business sector's point of view and its experiences in climate change mitigation. In fact, for the first time the number of business and industry organisations attending a COP equalled the environmental groups. The World Business Council for Sustainable Development (WBCSD), for instance, discussed the engagement of the private sector in the CDM as well as steps for future action. The UNFCCC also organised a series of round table discussions on enabling environments for technology transfer in co-operation and partnership with the private sector. The European Business Council for a Sustainable Energy Future presented another way to promote and highlight business efforts in regard to climate change: Starting in 2000, a well-known business personality is awarded an annual "Climate is Business E-Ward" for his/her support to national and international climate protection.[33]

In the Preamble of the CBD, Parties state "that the provision of new and additional financial resources and appropriate access to relevant technologies can be expected to make a substantial difference in the world's ability to address the loss of biological diversity". Private investment is recognised by the CBD as an important source for projects that help to conserve and sustainably use biodiversity-related resources. Linkages between private investment and the objectives of the Convention can be found throughout the text. For example, the private sector is explicitly addressed in regard to the sustainable use of components of biodiversity[34], and access to and transfer of technology[35]. In a more subtle way, it is also referred to in provisions concerning financial resources and mechanisms, and incentive measures[36].

From an environmental economics perspective, biodiversity, as well as nature in general, is an important factor of production. Hence, spending for biodiversity conservation and sustainable use amounts to investments in nature capital. From that perspective, the very purpose of the CBD is to promote investment policy objectives that seek to maintain and improve nature capital.[37]

"Noting that the level of official development assistance is of concern to all Parties […], and emphasizing the need for a substantial increase of international financial support to the implementation of the Convention", the 6th COP, in April 2002, took a number of important decisions to increase private sector financing for biodiversity.[38] These efforts will, *inter alia*, be supported by the Global Environment Facility

32. Goldemberg, J. (ed) (1998), *Issues & Options - The Clean Development Mechanism*.

33. UNFCCC, 9th Conference of the Parties, December 2003, Side Events and Exhibits, <http://unfccc.int>.

34. CBD, Article 10.

35. CBD, Article 16.

36. CBD, Articles 20 and 21, and Article 11 respectively.

37. Input from CBD Secretariat.

38. The 7th COP, for example, welcomes initiatives such as the Global Initiative on Banking, Business and Biodiversity and encourages donors from the public and private sectors to further explore opportunities for biodiversity related partnerships and initiatives. CBD, 7th Conference of the Parties, February 2004, COP decision VII/21, <www.biodiv.org>.

(GEF), which was requested "to explore and examine innovative and creative financing modalities to leverage increased funds from the private sector". Having in mind the same goal, the Executive Secretary of the Convention (in collaboration with the GEF) was requested to explore "opportunities of developing a global initiative on banking, business and biodiversity, with a view to increasing funding for biodiversity and mainstreaming biodiversity into the financial sector".[39] Annex I of this report provides an overview of private sector involvement in CBD processes.[40]

The UNCCD's objectives – the reduction of poverty through improved living conditions and the achievement of sustainable development in areas affected by desertification – requires the involvement of the private sector. Developed country Parties are therefore requested by the Convention to "encourage the mobilization of funding from the private sector"[41]. Support is also needed (and explicitly called for) to strengthen research co-operation between both public and private sectors in order to develop new technologies[42], as well as to explore innovative means to increase financing for the combat against desertification[43]. Article 21.3 of the UNCCD highlights the importance of private sector participation in raising funds, as well as elaborating and implementing programmes thus contributing to the objectives of the Convention.

The 6th COP to the UNCCD, held in Havana in 2003, took note of the importance of promoting private sector and economic opportunities in drylands and therefore agreed to "promote the mobilization of new and additional financial resources from public and private sources"[44]. It called on the Parties to, *inter alia*, link private sector initiatives with dryland production, increase the competitiveness of drylands production through the development of appropriate technologies, and enhance policy measures and incentive schemes to encourage private sector support for technological and scientific co-operation benefiting the drylands.[45]

Private investment, as a supplement or alternative to public financing, is needed to support the implementation of the Montreal Protocol. Despite this fact, the Montreal Protocol itself does not explicitly refer to the private sector and its role in protecting the ozone layer, *e.g.* by the development and transfer of appropriate technology. However, there are specific references to private investment in the Montreal Protocol's financial mechanism. Article 10 of the Protocol provides for the establishment of a Multilateral Fund for the Implementation of the Montreal Protocol, which seeks to involve the private sector in developing countries' phasing-out activities of ozone depleting substances (ODS). The Multilateral Fund

39. CBD, 6th Conference of the Parties, April 2002, COP decision VI/16, <www.biodiv.org>.

40. The compilation of quantitative information was extracted from the Second National Reports provided by 97 Parties to the Convention in May 2001, reflecting Parties' measures and initiatives to actively involve the private sector in the implementation process. The purpose of National Reports is to review the extent to which Parties are successfully implementing the provisions of the CBD and to assist the COP to assess the overall status of implementation of the Convention. National Reports are provided roughly every two years. CBD, National Reports, <www.biodiv.org>.

41. UNCCD, Article 6 (d).

42. UNCCD, Article 17.2 (f).

43. UNCCD, Article 20.2 (d).

44. UNCCD, 6th Conference of the Parties, August/September 2003, COP decision 1/COP.6, <www.unccd.int>.

45. Input from UNCCD Secretariat.

offers opportunities for private engagement, but also actively seeks measures to better mobilise private investment in general.[46]

Stimulating private investment: business opportunities, incentives and voluntary commitments

Private sector involvement in MEA implementation can be stimulated by various means. This section provides an overview of business opportunities arising from MEAs and explores the role of incentive measures established under MEAs in attracting private investment. In addition, it reviews voluntary responses of private investors, *i.e.* how business codes of conduct and other voluntary corporate responsibility approaches address global environmental problems.

Business opportunities under MEAs

The implementation of MEAs provides business opportunities by opening new markets, and stimulating the development of alternative products, production processes and new technologies. It can also contribute to fostering new types of partnerships between business and other stakeholders.

Independent of any externally established incentive measures, private investors will only contribute to MEA objectives if these also allow them to pursue their economic goals. The business sector seeks investment opportunities with minimal business risks in terms of cost and viability, a high potential for sales and replication, while maximising returns on investment. Since investment decisions are usually driven by concerns for profit, turnover, market share, cost savings, competitiveness, efficiency, and image, as well as job preservation and creation, private companies are not likely to support policies for the implementation of an MEA that would counteract the pursuit of these objectives.[47]

UNFCCC

The aim of the UNFCCC process is to prevent environmental damage through the emission of greenhouse gases caused by economic activity. Therefore, policies to implement the UNFCCC may affect all economic sectors with the greatest carbon intensities, in particular the energy and transportation sector, as well as agriculture, waste production and handling, solvent use, and the forestry sector. However, the requirement of additional investments in new technologies can also open new business opportunities. In the affected sectors investments can be made, *inter alia*, with the aim to reduce GHG emissions through technology and process upgrades (energy conservation, carbon sequestration and storage, fuel switching, increased energy efficiency, or increased productivity per unit GHG emitted), or by setting new standards.[48]

From a technology investment perspective, climate change is an important driver for creating and developing new climate-friendly technologies. As more and more market mechanisms are being used by Parties to reduce GHG emissions, investments follow such trends. Private investments in renewable energy, natural gas, fuel efficient cars, hydrogen cell technology and applications, as well as in technologies on the adaptation to climate change have increased, in part as a result of the UNFCCC. Natural gas, for example, was used for fuel switching, mainly due to economic attractiveness of the

46. Multilateral Fund for the Implementation of the Montreal Protocol, <www.unmfs.org>.

47. Fritz, W. (1995), *Umweltschutz und Unternehmenserfolg – eine empirische Analyse*.

48. Input from UNFCCC Secretariat; Seth, C./Kasius, A. (2001), *Investor's views on climate change*.

investments, technical developments and reduced GHG emission factors.[49] Hydrogen economy, including fuel cells, and carbon sequestration are also two areas where private as well as public sectors are investing heavily.[50]

Corporate investment in the alternative energy field has proliferated over the past years. Shell, for instance, established its fifth core business, Shell International Renewables, in 1997, developing commercial opportunities in both solar and wind energy. It has also developed Shell Hydrogen to create infrastructure solutions to meet the expected growth of fuel cells, a non-polluting, efficient source of electricity. Shell's competitors, such as Texaco, Suncor Energy and BP Amoco, have developed similar initiatives. Examples of companies investing in the development of climate-friendly alternatives can also be found among many gas and electric companies that invested in non-fossil fuel based energy and telecommunications technologies.[51]

Some private investors may engage in climate change issues for public relations reasons, but there are also strategic advantages from being an early actor, *e.g.* when investing in "Activities Implemented Jointly" (AIJ) or "Joint Implementation" (JI)[52] projects. Others are primarily stimulated by what they see as good investment opportunities in new technologies or as a good diversification in their energy technology holdings. Meeting their own internal environmental policy objectives can be a reason for exploring risk mitigation opportunities. For example, insurance companies have been reviewing ways to mitigate their risk exposure to high-carbon sectors and companies.[53]

CBD

Private sector activities threaten natural habitats, and therefore biodiversity, by the expansion of cropland and industrial facilities, the unsustainable use of natural resources, and by provoking increased urbanisation. Instead of damaging the ecosystems on which they depend, business activities can also be undertaken using methods that conserve and sustainably use biodiversity-related resources. Businesses could, for example, divert pressure from critical biodiversity resources, create new economic value from ecosystems and genetic resources, practice low-impact methods of cultivation to generate sustainable yields, and/or extend natural habitats etc.[54] These opportunities arise in sectors such as tourism,

49. For example, 18 months construction time for a new power generation plant (as compared to 5-6 years for a nuclear plant), small up-front capital requirements, and fast return on investment. Power generation efficiency has increased from 35% to 60% in the past decade.

50. Input from UNFCCC Secretariat.

51. Seth, C./Kasius, A. (2001); Shell <www.shell.com>.

52. In order to achieve emissions reductions in a more cost-effective manner, the first COP to the UNFCCC endorsed the implementation of the pilot phase of Activities Implemented Jointly (AIJ) up to the year 2000. This cooperative mechanism allowed developed countries to carry out mitigation projects in developing countries based on the approval of each involved Party. The AIJ phase aimed at introducing private funds and technologies. Following the example of AIJ, the project-based cooperative mechanism Joint Implementation (JI) was introduced under the Kyoto Protocol work program. In the following chapter, JI will be explained in more detail.

53. Seth, C./Kasius, A. (2001).

54. Rubino, M. C. (2000), *Biodiversity Finance*.

agribusiness, aquaculture, and forestry but also in the pharmaceutical industry, and would ultimately lead to both enhanced economic returns and biodiversity conservation.[55]

The sustainable use of biological diversity may offer great opportunities in terms of the pursuit of markets for biodiversity-linked products. Growing consumer demand for environmental products, increasing biodiversity degradation, and the capital needs of companies involved in biodiversity projects provide a compelling rationale for finding ways to attract new sources of capital to biodiversity-linked businesses. The markets for natural products, certified organic agriculture, and certified forest products (timber as well as non-timber forest products) are booming. Organic agriculture, as an example for an emerging market for biodiversity products and services, includes all agricultural systems that promote the environmentally, socially, and economically sound production of food and fibres. In processing organic products, artificial fertilisers or pesticides are replaced by natural pesticides as well as organic-based fertilisers. Benefits of biodiversity integration in agricultural management systems include long-term productivity increase, soil preservation, reduced risk of disease, and, in some cases, higher profit margins. A further potential for harnessing markets is offered by the markets for eco-tourism, parks and reserves, as well as by markets for ecological services. [56]

The market potential for genetic resources derived from natural resources is well recognised. In the United States, for example, 86 of the 150 most prescribed drugs are derived from, or patterned after, natural resources. Some contracts regulating access to genetic resources and benefit sharing among the different actors involving governments, private sector, and civil society, are already in place. The best known example is perhaps the contract between Merck, the world's largest pharmaceutical firm, and Costa Rica's Instituto Nacional de Biodiversidad (INBIO) dating back to 1992. In exchange for a limited number of samples to be used in pharmaceutical research, Merck paid an up-front fee of approximately USD 1 million. If commercial products are developed, INBIO will receive royalties. The Merck/INBIO contract may be considered a trend-setter in the industry; several other similar ones materialised after 1991.[57]

UNCCD

Although the UNCCD encourages the involvement of the private sector in achieving its objectives, the link between combating desertification and business opportunities (especially in developing countries) is not easy to establish. The dryland areas in these countries tend to be characterised by limited physical and socio-economic infrastructure that does not easily attract private investors. Also, the risks associated with dryland production, deriving from the fragile ecosystems and climate variability, combined with fluctuating commodity prices, have hindered the involvement of profit seeking private companies. Compared to developing countries that do often not dispose of the appropriate investment environment (*e.g.* sufficient level of infrastructure, economic and political stability, etc.), developed countries or countries with economies in transition are able to attract much higher amounts of private investment for desertification-related projects.[58]

Despite all shortcomings of dryland areas, business opportunities in the context of the UNCCD are yet to be fully recognised. Drylands can support numerous economically competitive activities that may

55. IFC, Biodiversity, <www.ifc.org>.

56. OECD (2003a); Rubino, M. C. (2000); OECD (2003d), *Organic Agriculture – Sustainability, Markets and Policies*; FOAM, <www.ifoam.org>.

57. Ten Kate, K./Laird, S. (1999) and INBIO (2001) as quoted in OECD (2003a).

58. Input from UNCCD Secretariat.

simultaneously succeed in preventing desertification and reclaiming degraded land. For example, the dryland "curses" of intense solar radiation, high temperatures, low-quality brackish water, desolation and wilderness can be turned into the "blessings" of solar energy, aquaculture, high-price winter cash crops, and a variety of other dryland commodity products (*e.g.* nuts, fruits, vegetables, resins, waxes, oils, and livestock). Drylands also offer new opportunities for the pharmaceutical sector and tourism.[59]

Potential entry points for business sector involvement in the development of drylands include sponsorships or public private partnerships, which may provide viable alternatives for direct investment to drylands while supporting the objectives of the UNCCD. Public private partnerships help in ensuring that the socio-economic and environmental objectives of the participating developing countries are duly taken into account in business actions. Foreign or domestic private capital is hereby leveraged for projects that have long-term business and development potential, but which cannot get sufficient financing or technical expertise through market channels. Sponsorship activities may include financial contributions such as grants to projects and support to research, product donations, and provision of expertise, scholarships and technical advisory services.[60]

Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer has a direct impact on certain industry sectors, since it restricts the production, use and trade of ODS, *e.g.* chlorofluorocarbons (CFCs) and halons. Phasing out CFCs and HCFCs (hydrochlorofluorocarbons) has affected the refrigerating industry, and the pharmaceutical industry (as a producer of metered-dose inhalers, MDI), while phasing out halons has affected the fire-fighting and aviation industry. Phasing out solvents impacts on the chemical industry in general whereas the farming and food industry is affected by the phasing out of methyl bromide that is used as a pesticide.[61]

The establishment of the Montreal Protocol created a huge new international market for chemical products and equipment that replace ODS, plus the related ancillary services (*e.g.* training, planning, and consultancies). For the manufacturers of chemicals and equipment – many of which were mature and stable industries with relatively fixed market shares – the Montreal Protocol provided the chance to capture new markets and market shares by researching, developing, and bringing to market new technologies faster than their competitors. The costs for these new technologies (and presumably the margins) were initially high, which provided incentives for companies to commercialise alternatives quickly.[62] For example, four Japanese electric companies[63] have jointly developed an air-cooled chiller unit, which reduces environmental impacts by using R407C, a refrigerant that does not destroy the ozone layer. This unit offers the world's highest coefficient of performance in the field of air-cooled chiller units used for air-

59. Input from UNCCD Secretariat.

60. Input from UNCCD Secretariat. A publication on the extracting industries in arid and semi-arid zones provides an example of an environmental planning and management tool to maximise private sector contributions to sustainable development in drylands. See Gratzfeld, J. (ed) (2003), *Extractive Industries in Arid and Semi-Arid Zones – Environmental Planning and Management.*

61. Input from UNEP officials; UNEP DTIE, <www.uneptie.org/ozonaction/>.

62. Input from UNEP officials.

63. Hitachi Air Conditioning Systems, Tokyo Electric Power, Chubu Electric Power, and Kansai Electric Power.

conditioning in buildings and factories. In addition, the adoption of new technologies has enabled enhanced efficiency of the unit, as well as to save energy and reduce operating costs significantly.[64]

Phasing out ODS has stimulated the development and introduction of alternatives and this is, indeed, where the business sector is expected to make the greatest contributions to the Protocol's objectives. HCFCs[65], for example, have been initially developed by the industry as an alternative to CFCs, and HBFCs[66] and BCM[67] in order to replace CFC and methyl chloroform. In the future, the pharmaceutical industry is expected to invest in the development of further alternatives to CFC using metered-dose inhalers. The farming industry, in collaboration with research institutions, has developed alternatives for methyl bromide for many applications. Research is continuing on developing cost-effective alternatives for remaining but critical applications (*e.g.* soil sterilisation).[68]

Incentives under MEAs to promote private investment

The purpose of incentive measures under MEAs is to change institutional and individual behaviour in order to achieve their objectives. "Incentives may be directed to correct some underlying causes related to economic development trends, poverty, lack of policy integration, sectoral policy impacts, and perverse measures undertaken at the national, supra-national, and international levels."[69] Incentive measures can be promoted by an MEA, but the responsibility of implementing them lies with national governments.

Some of the factors that determine investment flows and restrict private investments contributing to the objectives of MEAs are beyond public authorities' control, while others, *e.g.* economic and political stability, can be influenced by a government's policy regime. A stable policy regime may enable and encourage business and industry to operate responsibly and efficiently as well as to implement longer-term policies. For this purpose, the legal and institutional framework can be improved, *inter alia*, by eliminating obstacles to private investments.[70] National legal institutions may need to be strengthened for intellectual property protection and in order to reduce risks; administrative and law processes will need to assure transparency, participation in regulatory policy-making, and independent review.[71]

Choosing the right policy plays a major role when it comes to attracting private investment in support of MEAs. According to the Electric Power Research Institute (EPRI), global climate change, for example, has

64. Japan Corporate News Network, Electric Companies Offer Jointly Developed Air Conditioning Unit, 28.01.2004, <www.japancorp.net>.

65. HCFCs – Hydrochlorofluorocarbons. Since HCFCs contain an ozone depletion potential (albeit small), they are also controlled under the Montreal Protocol and scheduled to be phased out (they are considered "transitional" substances). This is ironic because HCFCs are a good example of how industry quickly and effectively responded to the technology development challenge posed by the Montreal Protocol. It also provides a cautionary tale for other MEAs about the need for Parties to carefully consider both the short-term advantages and the long-term implications of new technologies.

66. HBFCs – Hydrobromofluorocarbons.

67. BCM – Bromochloromethan.

68. Input from UNEP officials.

69. CBD, 6th Conference of the Parties, COP decision VI/15, <www.biodiv.org>.

70. UNCCD (2002), *Report of the Committee for the Review of the Implementation of the Convention on its First Session*; UNEP, Agenda 21, Chapter 30, <www.unep.org>.

71. UNFCCC, Workshop on Enabling Environments for Technology Transfer, <http://unfccc.int>.

"the potential to affect […] all sectors of the economy. Hundreds of billions of dollars are at stake, depending on climate policy goals, the manner in which policies are implemented, and the actions that individual countries and companies take to comply with greenhouse gas reduction requirements. For the electric power industry, climate policy can fundamentally affect technology choices and investment strategies – as well as the competitive positions of individual companies […]."[72]

Apart from environmental legislation and regulation, economic instruments may play an even bigger role in furthering the objectives of MEAs with the support of the private sector. Market-based instruments use the logic of the market to encourage more sustainable behaviour on the part of producers, consumers, and resource managers. They include economic instruments like taxation, tax credits, and subsidies; user charges; market creation such as emissions cap-and-trade systems; and green procurement schemes. Fiscal instruments are used to directly influence the behaviour of economic actors – individuals, households, and businesses – by modifying prices of environment-related goods and services. Among the measures that have been discussed but never realised are taxes on airline fuel. In contrast, the CDM and the EU Emissions Trading Scheme are examples for measures that have already begun to be implemented.[73]

Eliminating environmentally harmful subsidies may provide a good option to correct negative market externalities. Subsidies to agriculture, for instance, encourage the extension of agricultural lands, *i.e.* land is converted from forests, rainforests, and wetlands into agricultural production. In the U.S., for instance, some 50 per cent of wetlands have been lost mainly due to agricultural conversion; in Europe that number is close to 60 per cent and in both regions the process continues with negative results for biodiversity, desertification, and climate change. Another example are subsidies to fisheries which threaten biodiversity. The gap between the selling price of the annual catch and the much higher actual dockside value is made up for with government subsidies, which thus encourage depletion of major fisheries to commercial extinction, followed by bankruptcies and unemployment for fishermen.[74]

Box 2. **Dutch Green Funds**

Launched in 1995, the Dutch Green Investment Scheme aimed at encouraging private investments into sustainable projects. By attaching a tax break to officially approved "green projects", the government has been providing a subsidy to private investors. As a result, "green investments" have become financially attractive despite low interest rates. "Green certificates" are issued jointly by the Ministry of Housing, Spatial Planning and the Environment and the Ministry of Agriculture, Nature Management and Fisheries. One requirement for green funds is to invest at least 70% of their assets into loans to "green projects". Another requirement – although later partially lifted – was for projects to be based on Dutch soil.

Many mainstream Dutch financial institutions, including ABN AMRO and Rabobank have been actively involved in the financing of "green projects". The ABN AMRO Green Fund, for instance, totalled EUR 336 millions in green loans by March 2000. Specialised "green banks" have also been established, such as ABN AMRO Greenbank B.V. and Postbank Green. Demand for green funds far exceeded expectations, resulting in a lack of available projects. This led, initially, to the government widening the scope of relevant projects. It also later prompted the government to revise the tax breaks associated with those investments. The 2001 Tax Act, for instance, introduced ceilings for tax exemptions even though this was partially compensated by additional tax measures.

Source: Conservation Finance Guide, Fiscal Instruments, Case Studies, <http://guide.conservationfinance.org>.

72. EPRI, Global Climate Change Research, Report, <www.epri.com>.

73. OECD (2001e), *Sustainable Development – Critical Issues*; IISD, Financing Change, <www.iisd.org>; CFA, Fiscal Instruments for Conservation, <http://guide.conservationfinance.org>.

74. OECD (2003b), *Perverse Incentives in Biodiversity Loss*; OECD (2003c), *Environmentally Harmful Subsidies – Policy Issues and Challenges*.

The Parties to the UNFCCC especially addressed the issues of incentives in the 7th COP in Marrakesh in 2001 with the intention to improve the transfer of and access to environmentally sound technologies and know-how.[75] In 2003, the UNFCCC Secretariat organised a workshop on "Enabling Environments for Technology Transfer"[76], where representatives of governments, companies, private initiatives, and international organisations discussed different incentive measures and institutional arrangements to assure an appropriate technology transfer to developing countries with the support of the business sector.[77]

According to a recent report by the IEA, renewable energy sources momentarily provide more than 18% of global electricity production worldwide. Market deployment and development could be further promoted through economic incentives, feed-in tariffs, renewable portfolio standards and green certificate trading for power from renewable energies, as well as taxation of environment externalities. In parallel, public research and development (R&D) policies would be needed to improve conversion and power or energy storage technologies, reduce intermittence problems and lower the overall cost of these systems. Finally, adequate technology transfer and investment policies are required if the potential for renewable energy development is to be tapped where it is the largest, *i.e.* in developing countries. However, while the available portfolio of policies is very wide, these policies would need to be pursued more aggressively than they have been so far, and there would need to be a continuity of price signals to the renewables industry if the expected goals are to be reached. A carbon tax increasing over time or, perhaps more likely, a market for carbon reductions would provide such a signal.[78]

Article 11 of the CBD calls upon Parties to adopt socially and economically sound measures that act as incentives for the conservation and sustainable use of biodiversity. The creation of markets for biodiversity-related products and services is therefore an important incentive measure. In order to create markets, clearly established and enforced property rights are fundamental. In addition to Article 11 of the CBD, incentive measures were discussed in-depth by the COP in various meetings.[79] The COP also established a work programme promoting the development and implementation of social, economic, and legal incentive measures[80].

The UNCCD takes into account the importance of incentive measures for transferring, acquiring, adapting and developing appropriate technologies, as well as for mobilising and channelling private resources.[81] In the first session of the Committee for the Review of the Implementation of the Convention, the issue of "enabling environments" was raised, emphasising the need to improve conditions for co-operation with the private sector.[82] The COP also calls on Parties to enhance policy measures and incentive schemes to encourage private sector support for technological and scientific co-operation benefiting the drylands.[83]

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75. UNFCCC, decision 4/CP.7, <http://unfccc.int>.

76. UNFCCC (2003a), *Development and Transfer of Technologies. Report of the UNFCCC Workshop on Enabling Environments for Technology Transfer*.

77. UNFCCC, Workshop on Enabling Environments for Technology Transfer, <http://unfccc.int>.

78. IEA (2003), *Energy to 2050 – Scenarios for a Sustainable Future*.

79. For example COP V/15, COP VI/15 and COP VII/18.

80. CBD, COP decision V/15, <www.biodiv.org>.

81. UNCCD, Article 18.1 (e), and Article 20.2 (d) respectively.

82. UNCCD (2002).

83. UNCCD, decision 1/COP.6.

The Montreal Protocol does not explicitly provide for incentive measures to promote private investment. However, the subject was discussed at the 2nd Meeting of the Parties (MOP) where some newly industrialising countries were requesting "incentives to leapfrog the CFC phase in their industrial development". Subsequently, Parties agreed "to make provision for those incentives in the form of a financial mechanism and technology transfer".[84] As a consequence, the Multilateral Fund for the Implementation of the Montreal Protocol was established to help developing countries meet the incremental costs of complying with the provisions of the Montreal Protocol by, *inter alia*, providing incentives for the implementation of environmentally-friendly technologies.[85]

Voluntary commitments by private investors in support of MEA implementation

Each new MEA entails additional obligations for participating States. Some of these obligations then translate into requirements for individual investors operating in the jurisdiction of those States. In addition, increased pressure from stakeholders (such as shareholders, employees, communities, NGOs, and financiers) for improved corporate environmental performance as well as business opportunities arising from environmentally sound investments, have led to an increased consideration of environmental consequences of investments on the part of the enterprise. A growing number of companies and industries are responding in advance of, or in addition to, government mandatory requirements in addressing environmental aspects of their operations through voluntary approaches.[86]

From a corporate point of view, there are several benefits of adopting voluntary environmental approaches. Public relations and reputation can be enhanced by creating a socially and environmentally responsible image. Better environmental performance can also be synonymous with improved quality control of final products, and improved plant operating productivity with less resource use and less waste, leading to increased profitability. Environmentally aware businesses often experience this "win-win"- situation, and voluntary approaches going beyond compliance with government regulatory requirements underpin this approach.[87]

Environmental policies, voluntary codes of conduct, and standards aiming at contributing to sustainable development have been developed either by the business and finance sector itself, or by public financial institutions, such as export credit agencies and multilateral development banks, or by international organisations. Examples of such initiatives are the OECD Guidelines for Multinational Enterprises[88], the UN Global Compact[89], the Business Charter for Sustainable Development sponsored by the International Chamber of Commerce (ICC)[90], or the CERES Principles[91]. The "Equator Principles"[92] are an example for

84. Montreal Protocol, 2nd meeting of the Parties, June 1990, <www.unep.org/ozone/>.

85. The Multilateral Fund is described in greater detail in the Chapter on Financial Mechanisms.

86. OECD (1999).

87. OECD (1999).

88. Further information and the full text of the Guidelines are available at: <www.oecd.org/daf/investment/guidelines>.

89. UN Global Compact, <www.unglobalcompact.org>.

90. ICC, Business Charter for Sustainable Development, <www.iccwbo.org>; OECD (1999).

91. CERES, <www.ceres.org>; OECD (1999).

92. Equator Principles, <www.equator-principles.com>.

a voluntary approach of private financial institutions committing to environmentally responsible lending practices.

Some of these policies and codes of conduct include a reference to compliance with international environmental measures or MEAs, as a standard of behaviour. For example, the chapter on Environment of the OECD Guidelines for Multinational Enterprises recommends that "enterprises should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goal of sustainable development." A sectoral example for a code of conduct with reference to MEAs is the Code for Environmentally Responsible Tourism of the Pacific-Asia Travel Association, which recommends to "comply with all international Conventions in relation to the environment."[93]. The International Finance Corporation (IFC), the World Bank's "private sector arm", states in its Environmental and Social Procedures that it "does not finance project activities that would contravene country obligations under relevant international environmental treaties and agreements."[94] One of the objectives of the OECD Recommendation on Common Approaches on Environment and Officially Supported Export Credits, adopted in December 2003, is to "promote coherence between policies regarding officially supported export credits and policies for the protection of the environment, including relevant international agreements and conventions, thereby contributing towards sustainable development." Among export credits agencies, the Australian Export Finance and Insurance Corporation (EFIC) states in its Environmental Policy that "all transactions are checked against international commitments defined in treaties, protocols and other declarations".[95]

Though many voluntary codes of conduct or guidelines do not directly refer to MEAs, companies will contribute to the objectives of the Rio Conventions, the Montreal Protocol, or other MEAs, by applying the endorsed principles or guidelines. The first two CERES principles, for example, aim at the protection of the biosphere by preventing business operations from harming natural habitats (air, water, earth, etc.). Other goals are the sustainable use of renewable resources like water, soils, or forests, and the efficient use of non-renewable natural resources. MEAs are likely to benefit from principles focusing on environmental objectives, but also from those that consider issues like employee education and training, research, or environmental assessment.[96] In terms of technology transfer, Principle 9 of the UN Global Compact identifies broad potential entry points for businesses that want to pursue benefits from a more efficient use of resources, capturing both "hard technologies and soft systems".[97]

93. Adams, J. (1999), *Foreign Direct Investment and the Environment: the Role of Voluntary Corporate Environmental Management*.

94. IFC, <www.ifc.org>.

95. Australian Government, EFIC, <www.efic.gov.au>.

96. Employee education is covered by the second principle of the ICC Business Charter, research is covered by principle 16. The precautionary approach to environmental challenges of the UN Global Compact, Principle 7, promotes useful assessment tools, such as environmental impact assessment, strategic environmental assessment, environmental risk assessment, and life cycle assessment, to be employed by companies.

97. UN Global Compact, Principle 9, <www.unglobalcompact.org>.

Some business leaders have launched initiatives, individually or through sectoral and cross-sectoral co-operation, that lead to improved economic performance while contributing to the objectives of MEAs.

Box 3. **Phasing out ODS: Private initiatives in India**

In May 2002, four large manufacturers of chlorofluorcarbons (CFCs) launched a bold new initiative, aimed at accelerating the phase out of ozone-depleting substances (ODS) across India.[98] In 1998, they accounted for 16 per cent of the world production of CFCs, after China, the world's biggest manufacturer of CFCs, which had a 35 per cent share of the world market. The initiative is being supported by UNEP's Energy and OzonAction branch and Cleaner Production Unit and India's National Cleaner Production Centre.

Under the Montreal Protocol, developed countries have already phased out CFCs. Developing countries like India have been given assistance and set timetables and targets for similar phase-outs. Under their private initiative, the four Indian CFC manufacturers are pledging to crack down on "rogue emissions"[99] by introducing new cleaner production chemicals. Production by the four companies is scheduled to reach zero in 2010 from a peak production figure of 23 659 tonnes at the end of the 1990s.

The initiative is also intended to back a nationwide public awareness scheme. It will be targeted at the thousands of small and medium sized companies that are part of the CFC supply chain. This includes fridge makers and repairers, suppliers of air conditioning units, and users of products that contain the ozone-depleting chemicals. Raising awareness among the complicated chain of suppliers and users will go a long way towards reducing India's releases of CFCs. It will also help prepare these companies and organisations for the final phase-out of the chemicals in eight years time, encouraging them to switch to more ozone-friendly alternatives. UNEP's Energy and OzonAction branch hopes India's voluntary pledge initiative will spur on other developing countries to adopt similar ozone friendly schemes.

Source: UNEP, India Re-Doubles Efforts to Save the Ozone Layer, 02.05.2002, <www.unep.org>.

98. The four companies concerned are Chemplast Sanmar, Gujarat Fluorochemicals, Mafatlal Industries, and SRF Ltd.

99. The term "rogue emission" refers to ozone depleting substances that are not covered by an MEA.

PART II: FINANCIAL MECHANISMS: THEIR ROLE IN PROMOTING PRIVATE INVESTMENT

This part describes the various financial mechanisms established by governments to support the implementation of the Rio Conventions and the Montreal Protocol, and the ways in which these mechanisms promote private investment.

Overview: Financial mechanisms under MEAs

Financial mechanisms aim at attracting investments, for instance, by creating incentives for investors; seeking and promoting the involvement of the private sector (*e.g.* facilitating public-private partnerships); developing innovative financial mechanisms; removing obstacles to the effective use of resources; etc. The overall goal of many of these financial mechanisms is to help developing countries to fund projects and programmes required for compliance with MEAs. Provisions dealing specifically with financial resources and mechanisms play a prominent role in all three Rio Conventions as well as in the Montreal Protocol. The implementation of these provisions is crucial to facilitate and channel investments, both public and private, to achieve the agreements' objectives. The following paragraphs provide an overview of financial mechanisms under these MEAs.

As provided for in Articles 11 and 21.3 of the UNFCCC, the Global Environment Facility (GEF) serves as the financial mechanism to the Convention. The GEF is therefore the main funding channel for climate change projects that are designed to reduce the risks of global climate change by providing energy in a sustainable manner. Climate change is one of the six focal areas of the GEF, making up the second largest group of GEF-funded projects. The GEF receives guidance from the COP to the UNFCCC on policy, programme priorities, and eligibility criteria related to the Convention. While approximately USD 1.6 billion have been provided in grants from the GEF Trust Fund for climate change projects since 1991, an additional amount of more than USD 9 billion has been contributed through co-financing from bilateral agencies, recipient countries, and the private sector.[100]

The GEF has not been as successful as originally envisaged in mobilising capital from the business sector, which is seen as key to achieving global GHG emissions reductions particularly in developing countries.[101] In order to facilitate private investment in GHG reducing projects, the Kyoto Protocol, adopted at the third COP to the UNFCCC in 1997, incorporated three innovative mechanisms. The three so-called Kyoto Mechanisms, "Joint Implementation", "Emissions Trading", and "Clean Development Mechanism", allow credit to be gained from action taken in other Parties' territories.[102]

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100. These figures do not include financing of multi-focal areas projects or multi-focal areas capacity building projects.

GEF, Focal Areas, <www.gefweb.org>; UNFCCC, Issues, Financial Mechanism, <http://unfccc.int>; UNFCCC (2003b), *Review of implementation of commitments and of other provisions of the Convention. Financial mechanism. Report of the Global Environment Facility to the Conference of the Parties.*

101. GEF (1998), *Operational Report on GEF Programs*.

102. Zhang, Z./Maruyama, A. (2001), *Towards a private-public synergy in financing climate change mitigation projects*.

The GEF also supports the implementation of the CBD.[103] Conservation and sustainable use of biodiversity constitutes nearly half of all GEF projects. So far, the GEF has allocated more than USD 2 billion in grants and additional USD 2 billion in co-financing (*e.g.* from bilateral agencies, the business sector and NGOs) to approximately 700 biodiversity projects.[104] The COP to the CBD supports the GEF by providing guidance in fields related to the use of resources for purposes of the Convention.[105]

The UNCCD differs from the other Rio Conventions in that it does not designate a central institution as financial mechanism for implementing the Convention. Instead, the UNCCD seeks to encourage multi-source funding and establishes a Global Mechanism[106] to "promote actions leading to mobilization and channelling of substantial financial resources, including for the transfer of technology"[107]. In its 6th session in August/September 2003, the COP to the UNCCD decided to identify the GEF as a financial mechanism for the Convention, following the designation of land degradation (desertification and deforestation) as a new focal area of the GEF by the GEF Assembly in October 2002. The recognition of the GEF's particular role in providing funding for activities concerning land degradation and thereby supporting the implementation of the Convention, is expected to lead to strengthened and better targeted financing for the combat against desertification.[108]

The Montreal Protocol has established a financial mechanism (Article 10), which includes the Multilateral Fund for the Implementation of the Montreal Protocol and other means of multilateral, regional, and bilateral co-operation. The Multilateral Fund assists developing country Parties to comply with the control measures of the Protocol. It provides funds which cover the incremental costs of phasing out ODS, and a clearinghouse function to help build national capacity to implement the MEA. With the last replenishment of the Multilateral Fund, decided in 2002, the total amount agreed by the Parties for this purpose exceeds USD 2 billion.[109]

Between 1991 and 2002, thanks to support by the Multilateral Fund, more than 100 developing countries were able to phase out more than half of their CFC consumption. The Fund will continue assistance until the phase-out is completed. Apart from the Multilateral Fund, the GEF, which defines ozone depletion as one of its focal areas, also supports the goals of the Montreal Protocol by providing operational guidance for international ozone activities. In partnership with the Protocol's implementing agency, the GEF funds international ozone activities in countries in Central and Eastern Europe, central Asia and the Russian Federation, which are not eligible for assistance under the Multilateral Fund.[110]

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103. Article 21 of the CBD provides for a financial mechanism, designating the GEF in Article 39.

104. GEF, Projects, <www.gefonline.org>.

105. GEF, Focal Areas, <www.gefweb.org>.

106. UNCCD, Article 21.

107. UNCCD, Article 21.4.

108. Input from UNCCD Secretariat.

109. Input from UNEP officials.

110. UNEP, The Ozone Story, <www.unep.org/ozone/>; GEF, Focal Areas, <www.gefweb.org>.

How do financial mechanisms promote private investment?

The Global Environment Facility

The GEF is an independent financial organisation established in 1991 to forge international co-operation and finance actions in six focal areas representing threats to the global environment: biodiversity loss, climate change, degradation of international waters, ozone depletion, land degradation and persistent organic pollutants. Its task is to provide financial resources on a grant or concessional basis "to meet the agreed incremental costs of measures to achieve agreed global environmental benefits".[111] The restriction to incremental costs means that funding covers the extra costs of changing a management practice, a policy, or an investment so that it generates global benefits – rather than only national benefits. For instance, in terms of power generation, the same national development objective can be reached by choosing a costlier solar energy technology instead of coal or diesel fuel. The cost difference (or "increment") of implementing a cheaper, but more polluting, and a more expensive but environmentally-friendly, option can be covered by GEF grants.[112]

The GEF offers opportunities for both foreign and domestic investment by the private and public sectors. It brings together 176 member governments, leading development institutions, the scientific community, and a wide spectrum of business sector representatives and non-governmental organisations. The United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank are the implementing agencies of the GEF. Any individual or group can propose a project directly to one of the implementing agencies. The prerequisites for GEF funding are that the project reflects "national or regional priorities and [has] the support of the country or countries involved, and it must improve the global environment or advance the prospect of reducing risks to it."[113]

The business sector is recognised as an important stakeholder in GEF projects and activities. Private companies play a critical role in partnerships with the GEF, since they dispose of the necessary technical, managerial, and financial resources and expertise to address global environmental challenges. Besides, the growth of the global economy and the ongoing privatisation have enormously increased the influence of private sector activities on the environment. Therefore, "the GEF encourages the private sector to seek opportunities to collaboratively engage in the identification of project concepts and objectives, as well as in the financing, monitoring, and evaluation of GEF projects."[114]

The World Bank ensures the development and management of investment projects, and together with the IFC, seeks to promote investment opportunities and to mobilise private sector resources that contribute to GEF objectives. Several private companies, ranging from large corporations to small-scale local entrepreneurs, are currently participating in GEF projects. Their respective roles vary from co-financing and providing technology and/or strategic and technical advisory services to being executing agents, or recipients of GEF funding. Private sector parties may also co-operate by attending workshops or meetings with project executing agencies, or by preparing studies.[115]

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111. GEF, Instrument, Article 2.

112. GEF, <www.gefweb.org>; OECD (2002a), *The DAC Guidelines: Integrating the Rio Conventions into Development Cooperation*.

113. GEF, <www.gefweb.org>.

114. GEF, Private Sector, <www.gefweb.org>.

115. GEF, <www.gefweb.org>; Input from UNCCD Secretariat.

Box 4. **GEF – Environmental Business Finance Program**

The Global Environment Facility has recently launched a sustainable market creation project seeking to involve more financial intermediaries in GEF projects and to demonstrate that profitable investment opportunities in environmentally-friendly projects exist. The Environmental Business Finance Program (EBFP) is designed to allow small and medium enterprises (SMEs) to carry out projects and activities that target the GEF focal areas of climate change, biodiversity, land degradation, and persistent organic pollutants. By sharing the financial risks associated with developing a portfolio of global environmental projects, and by providing capacity building support to the financial intermediary, EBFP will play a catalytic role in promoting access to finance to SMEs engaged in activities beneficial to the global environment.

Through proactive market development, technical assistance and financing support, the EBFP will seek to engage financial intermediaries to service the GEF-eligible SME market. The EBFP will work with the financial intermediaries to introduce best practice SME finance tools and training, as well as with SMEs to build local capacity to develop and support viable business plans. The GEF-eligible SME market will be proactively developed through market assessments, know-how sharing, and best practice dissemination, as well as through activities that expand market size and scope, and raise consumer awareness. In addressing the key obstacles (lack of access to financing, limited capacity, and a weak supportive environment), the EBFP aims to create a market for sustainable, mainstream GEF-eligible SMEs.

The EBFP will be implemented in ten to twelve countries, through programmes that will be specifically developed for each country. SMEs are an important component of any economy and prevailing players in economic systems. The engagement of SMEs in GEF-eligible activities will promote GEF goals and policies in emerging and transition countries, relieve the threats to biodiversity, and mitigate climate change. On the other hand, encouraging financial intermediaries to finance SMEs would contribute significantly to the economic development of countries. In the case of GEF-eligible SMEs, opening the market for domestically sourced financing will have a significant impact on the development of GEF promoted activities.

Source: IFC, <www.ifc.org>.

In order to benefit from private investments, *e.g.* in the form of technology transfer, the GEF seeks to create the necessary conditions to promote business sector involvement by various means. This includes removing barriers to business sector involvement, for instance, by creating, opening or transforming markets (*e.g.* markets for renewable energy), or by developing capacity. Further, additional financing modalities have been developed in co-operation with commercial financial institutions and intermediaries. The "non-grant financing modalities" include contingent finance, concessional and contingent loans, and partial credit guarantees.[116] These alternative financing mechanisms increase the cost-effectiveness of GEF resources by reducing initial outlays, creating a potential for repayment, or allowing for a return on investment. "Alternative bankable feasibility studies" are another modality for increasing the participation of the business sector. In this case, the GEF provides the resources necessary to explore the feasibility of alternatives to conventional practices, contributing to improved environmental project performance. The output of such a project consists ideally in a bankable study that helps project proponents to receive funds from private sector financiers and other development agencies. The GEF also seeks to promote "progressive partnerships" with the private sector, *i.e.* direct, long-term collaboration between the GEF and a private company or business association with the goal to achieve an identified global environmental benefit.[117]

116. For further information see GEF (2004), *Engaging the Private Sector in GEF Activities*.

117. GEF (2004).

Box 5. **Development of on-grid wind electricity in Tunisia**

The GEF provides grants for a climate change-related project in Tunisia that is being implemented by UNDP. The objective of the project is to enable Tunisia to increase the use of wind energy by reducing implementation costs and removing the barriers that are currently impeding large-scale adoption of this technology (*e.g.* lack of knowledge regarding wind power potential, absence of green power markets, and limited availability of investment capital). By committing itself to the deployment of 100 MW on-grid wind capacity in its 10th plan (2003-2007), the government of Tunisia seeks to cut the country's emissions of GHGs while taking a strategic position towards the increasing promises of the wind electricity industry worldwide. With only 20 MW on-grid wind capacity currently operating under the ownership and management of the state Power Monopoly, Tunisia has also announced the future installation of an additional 200 MW on-grid wind power plant within its 11th plan (2008-2011), thus adopting a long-term programme approach in order to maximise private sector participation on a self-sustaining commercial basis.

The benefits of the above capacity increases could be substantial to the country, stimulating to the wind power industry and the global environment by an improved energy balance and integration of local manufactures, and could create sizable market opportunities for wind-turbine manufacturers, together with significant CO_2 abatement. However, these benefits can only apply if the capacity increases are accompanied with targeted capacity strengthening, deep regulatory reforms that spell out the role of key actors in a transparent environment along with the required foreign direct investments to drive-in the expected private sector capital and technical know-how.

Tunisia seeks to remove the existing barriers to wind energy commercialisation: (i) by supporting the strengthening of the institutional, regulatory, and operational capacities of the key structures involved in wind energy sector development through technical assistance, *e.g.*, ANER (National Renewable Energy Agency) and IPP Office (the country's Independent Power Production Office); (ii) by contributing to a production-based "smart-subsidy" scheme for the deployment and commercial operation of 100 MW capacity; and (iii) by implementing a technical assistance component to ensure sizable integration (minimum target of 40%) of the relevant local industry (including electric equipment manufacturing, electronics, mechanical etc.).

Funding required for the project will come mainly from the private sector, the Société Tunisienne de l'Electricité et du Gaz (STEG) as the main energy producer in the country, and from GEF. For a total project cost of USD 25 million, the financial support required by the GEF is estimated between USD 5 to 8.75 million. This range will depend on the quality of wind resources, the real avoided cost of thermal energy, and the technology evolution.

Source: GEF, Project Database, <www.gefweb.org>.

Despite all efforts to attract private investment for projects in the designated focal areas, the GEF still has to overcome obstacles. One of them is the business community's large unawareness of the GEF, its projects, and the opportunities to achieve tangible returns through partnerships. The GEF also seeks to accelerate the approval process, *e.g.* by simplifying the estimation of incremental costs, since private companies are often not willing or able to wait up to two years for approval and endorsement of their project. Since some GEF supported climate-change projects "relate to cutting-edge technology, business strategy, and regional or countrywide marketing plans", the business sector may also fear excessive disclosure of valuable business information required by procurement rules.[118]

118. GEF (2004).

Box 6. **Flexible mechanisms under the Kyoto Protocol**

Most assistance for climate change mitigation activities has come from the public sector, while private investment in so-called climate friendly projects has been rather low due to high initial costs and high risks. Under these circumstances, the introduction of three innovative mechanisms under the Kyoto Protocol is expected to improve the situation. The Kyoto Protocol has a strong market orientation in its approach; its mechanisms are designed to send price signals to the market, and facilitate energy-related cost savings and cost recovery of climate-friendly investments, thereby reducing some of the barriers associated with financing of mitigation projects. While facilitating private investment and thereby assisting non-Annex I countries (developing countries) in achieving sustainable development, the mechanisms will also help Annex I countries (industrialised countries and countries with economies in transition) to meet their Kyoto emissions targets at lower cost.

Joint Implementation (JI)

Joint Implementation among Annex I Parties is defined in Article 6 of the Protocol. This instrument allows industrialised countries to transfer to (or acquire from) other industrialised countries emission reduction units (ERUs) from projects that reduce emissions, or increase removal sinks, in the territory of another Annex I Party. These ERUs can be used by Annex I Parties to fulfil their Protocol commitments.

A Joint Implementation project might involve, for example, replacing a coal-fired power plant with a more efficient combined heat and power plant, or reforesting land. For instance, if a company based in an Annex I country invests in an emissions reduction project in another Annex I country (*e.g.* retrofitting coal-fired power plants to burn natural gas in Russia), the ERUs for the emissions avoided are allocated to the investing company. In practice, JI projects are most likely to take place in Annex I Parties with Economies in Transition, where there tends to be more scope for cutting emissions at low cost.

Emissions Trading

Article 17 of the Kyoto Protocol establishes opportunities for Annex I countries to participate in emissions trading among themselves for meeting their emission targets. Emissions trading evolves from a system that restricts the aggregate allowable amount of GHG and allows market forces to continually move the allowed emissions to the highest value uses. Market transactions are driven by relative prices of emission reduction opportunities among market participants.

Through emissions trading, Annex I Parties may acquire assigned amount units (AAUs) from other Annex I Parties that find it easier, relatively speaking, to meet their emission targets. This enables Parties to utilise lower cost opportunities to reduce emissions, irrespective of the country in which those opportunities exist, in order to lower the overall cost of reducing emissions. Several countries are in the process of setting up emissions trading schemes (ETS) to prepare for trading under the Kyoto Protocol. The EU ETS, for example, is operating from 2005-2007.

Clean Development Mechanism (CDM)

Unlike the JI or Emissions Trading provisions, the Kyoto Protocol provides more detail for the Clean Development Mechanism. Co-operation under the CDM is expected to be similar to the concept of JI between developed and developing countries. The CDM allows Annex I Parties to implement projects that reduce emissions in the territory of a non-Annex I country thereby generating certified emission reductions (CERs). The sale of CERs offers the prospect of recovering part of the additional investment costs associated with climate-friendly investments. In addition, the CDM provides incentives for private investment by offering cost-effective abatement options and new business opportunities while allowing each country to take region and country-specific institutional realities into consideration. Developing countries are particularly expected to benefit from private investment in form of environmentally-friendly technology transfers. Furthermore, a share of 2% of the proceeds of the CERs issued for CDM projects is used for the adaptation fund and thus contributes to the financing of development projects in pursuance of UNFCCC objectives. This provision is rather innovative as it is the first time a levy is imposed on business transactions for the financing of environmental and development activities.

A CDM project might involve, for example, a landfill gas capture project, a rural electrification project using solar panels or the reforestation of land. In order to generate CERs, a project must contribute to measurable and long-term benefits related to the mitigation of climate change, in the form of emission reductions or carbon removals that are additional to any that would have occurred without the project.

Source: UNFCCC, Issues, Kyoto Protocol Mechanisms, <http://unfccc.int> et al.[119]

119. UNFCCC/CDM, <http://cdm.unfccc.int>; IEA (2001), *Kyoto Mechanisms, Monitoring and Compliance – From Kyoto to The Hague*; JIN, <www.northsea.nl/jiq/>; Zhang, Z./Maruyama, A. (2001); IETA, <www.ieta.org>; Ott, H.E. (2001), *Climate Policy after the Marrakesh Accords: From Legislation to Implementation*.

The Global Mechanism

The Global Mechanism (GM) was established in 1997 under the authority of the first COP of the UNCCD in conformity with Article 21 of the Convention. Unlike the GEF, the GM provides no funding, but mobilises financial resources (and channels their flow), in order to guarantee increased financial effectiveness and efficiency. The GM acts as a "hub" for a dynamic network of partners, committed to focusing their energies, resources, and knowledge on combating desertification.[120]

The COP endorsed collaborative institutional arrangements between IFAD (International Fund for Agricultural Development), UNDP, and the World Bank in support of the GM. It also called for active support to the GM from other UN institutions and programmes, development banks, NGOs, and the private sector. Partnership is one of the most important features of the UNCCD. In this spirit, the GM acts as a broker and partnership builder that actively works on the interface between resources needed and resources available, between supply and demand, with the task of mobilising substantial resources for combating desertification and drought. Its main objective is to promote a broader involvement of governments, NGOs and potential donors, particularly the business sector. In addition, the GM promotes and enhances opportunities for developing innovative sources of funding and new strategic initiatives.[121]

Private investments are a very important financial source in combating desertification and therefore the GM increasingly focuses on attracting private capital from the business sector. Private capital flows to developing countries currently make up nearly six times the amount of ODA. However, one of the problems of the GM is the uneven resource allocation to developing countries. Private investment mainly flows into larger, medium-income developing countries and much less to African countries that are particularly affected by desertification and land degradation. Private capital flows to Africa mainly stem from oil and minerals extracting companies.[122]

The GM's ability to attract private investment could still be considerably increased by seizing new opportunities in innovative financing mechanisms. At its 6th session, the COP recommended several measures to be taken in this context in coming years. For example, to take better advantage of the synergies between the UNCCD and the UNFCCC by developing a joint venture with the World Bank and IFAD in carbon financing and using existing World Bank carbon funds (*e.g.* the Biocarbon Fund). Another recommendation concerns the optimisation of the mix of ODA, private investment, and carbon financing based on strategic opportunities and return on investment.[123]

The GM hopes to mobilise more financial resources by using the multiplier effect of its support activities. It seeks to explore a comparative advantage through two closely linked principles: mainstreaming (*i.e.* incorporating desertification and land degradation issues into national development agendas) and partnership building. By investing its own resources on the basis of these principles and creating improved conditions for investors, the GM leverages financial contributions of its development partners to implement the UNCCD. Provision of these catalytic financial resources has already mobilised significant resource flows and has lead to a considerable multiplier effect on GM's initial investment. The multiplier effect has a great appeal to both public and private sector involvement.[124]

120. Global Mechanism of the UNCCD, <www.gm-unccd.org>.

121. Global Mechanism, <www.gm-unccd.org>.

122. UNCCD (2003), *Independent Evaluation of the Global Mechanism*.

123. UNCCD (2003).

124. Global Mechanism, <www.gm-unccd.org>; Input from UNCCD Secretariat.

The multiplier effect of GM interventions can be illustrated under the Sub-regional Action Program (SRAP) for West Africa, for which the GM was designated as facilitator for resource mobilisation. A GM facilitation grant of USD 100 000 combined with other technical and financial assistance to UNCCD projects under the SRAP was followed by several GEF grants, of which USD 700 000 have already been approved (in addition to about USD 20 million prospective GEF grants). These activities resulted in an overall strategic framework encompassing partnership agreements and investment programmes in the two project regions. Investments in the Foot Djallon Highland amount to more than USD 75 million. For the Niger/Nigeria initiative[125], an investment portfolio of over USD 400 million is set up, including programmes and projects supported by bilateral and multilateral partners as well as the private sector.[126]

The Multilateral Fund for the Implementation of the Montreal Protocol

The Multilateral Fund for the Implementation of the Montreal Protocol was established in 1990. The main objective of the Multilateral Fund is to assist developing countries (which in the framework of the Montreal Protocol are also called "Article 5" countries), whose annual per capita consumption and production of ODS is less than 0.3 kg, in complying with the control measures of the Protocol. Currently, 129 of the 184 Parties to the Protocol meet these criteria. Like the GEF, the Multilateral Fund provides funding on a grant or concessional basis to meet incremental costs of implementing environmentally-friendly technologies, management systems etc.[127]

Projects and activities supported by the Fund are implemented by the four international implementing agencies UNDP, UNEP, UNIDO, and World Bank. They assist Article 5 countries by preparing country programmes, feasibility studies, and project proposals, and by providing technical assistance for project development and implementation, as well as information dissemination (clearing-house function). Several developed countries provide similar assistance on a bilateral basis.[128]

The business sector plays an important role in supporting the Montreal Protocol's goal to phase out ODS. The Executive Committee of the Multilateral Fund has therefore asked the IFC to explore ways to better mobilise private investment in order to assist developing countries in phasing out ODS, particularly in sectors with a good return on investment in ozone-friendly technologies. An important goal of developing different forms of innovative funding, including financing from the private sector, is to support phase-out projects and activities that are not eligible for full funding in the form of grants from the Multilateral Fund. The private sector may also provide funding for concessional loans to Article 5 countries for their phasing-out activities or engage in public-private partnerships that seek to evaluate the ozone-depleting potential of new substances.[129]

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125. The Niger/Nigeria Initiative on Co-ordinated Management of National Resources in the Trans-boundary Areas is part of the Global Mechanism's support to West and Central African countries. The GM's main objective within the region is to provide support in order to create an enabling environment for partnership building and effective and efficient resource mobilisation for the National Action Program (NAP) implementation. Global Mechanism, The Global Mechanism's support to West and Central African Countries, <www.gm-unccd.org>.

126. Global Mechanism, The Multiplier Effect in practice, <www.gm-unccd.org>.

127. Multilateral Fund, <www.unmfs.org>.

128. Multilateral Fund, <www.unmfs.org>.

129. Multilateral Fund for the Implementation of the Montreal Protocol (2003), *Policies, Procedures, Guidelines and Criteria*.

UNIDO, with the financing support of the Multilateral Fund, has executed a project with Al Hafez Company, which has about 40 per cent of the domestic market in the refrigerant sector in Syria, and accounted for 65 per cent of refrigerant ODS use. The Multilateral Fund provided financing for its refrigerant and foam operation, and the company itself contributed additional financing for renovations. As a result, the use of ODS was completely phased out of the production process. In addition, the company improved the quality and energy efficiency of its newly designed modes of refrigerators, putting itself in a position to be certified for ISO 9002. In addition to these environmental improvements, Al Hafez has been able to maintain its leading market position in the Syrian Arab Republic and to effectively compete with European exports to the Middle East.[130]

130. UNIDO, UNIDO and the Montreal Protocol, <www.unido.org>.

PART III: KEY ISSUES RELATED TO MEAS AND PRIVATE INVESTMENT

This part describes various key issues in MEA implementation and analyses how private investment can contribute to them. These key issues are capacity building; education and training, participation and awareness; access to, transfer, and diffusion of technology; research, technical and scientific co-operation; and environmental assessment. This part also looks at potential synergies among MEAs and their link to private investment.

Capacity building

General considerations

Capacity, defined as "the ability of individuals, groups, organisations, and institutions to address environmental issues as part of a range of efforts to achieve sustainable development"[131], is a key element for the management of environmental problems. The key principle underlying the concept of capacity in the environment is that it integrates environment and development concerns at all levels; aims at strengthening institutional pluralism; is driven by the community in which it is based; and involves a variety of management techniques, analytical tools, incentives, and organisational structures in order to achieve a given policy objective.[132]

Capacity building is a key issue in helping Parties, especially developing countries, respond to environmental needs addressed in MEAs. Agenda 21 addresses capacity building as follows: "The ability of a country to follow sustainable development paths is determined to a large extent by the capacity of its people and its institutions as well as by its ecological and geographical conditions. Specifically, capacity-building encompasses the country's human, scientific, technological, organizational, institutional, and resource capabilities. A fundamental goal of capacity-building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environmental potentials and limits and of needs as perceived by the people of the country concerned. As a result, the need to strengthen national capacities is shared by all countries."[133]

Capacity, whether institutional or human, is essential to target investments promoting environmental goals, to establish an adequate investment climate, and to ensure that investment – whether public or private – and environmental goals are mutually supportive. The combination of financial support, technical assistance, and training that a private company is able to provide plays a major role in developing capacity in countries that are underdeveloped in this respect. These efforts are vital to a region's ability to further attract private investments, since companies will find a functioning basis for their business activities.[134]

Especially developing countries do not always have the requisite scientific, technical and technological, organisational and institutional capacities to respond effectively to climate change, loss of biodiversity, desertification, ozone depletion, etc. One of the key requirements in this regard is to ensure adequate sustained funding for strategic capacity building programmes. Attracting financial resources for long-term

131. OECD (2000), *Donor Support for Institutional Capacity Development in Environment: Lessons Learned*.

132. OECD (2000).

133. UNEP, Agenda 21, Chapter 37, <www.unep.org>.

134. OECD (2002a).

integrated programmes is as essential as ensuring coordination between the different providers (intergovernmental and non-governmental organisations, private companies, etc.) in order to enhance the effectiveness of financial resources in supporting capacity building programmes and activities.[135]

Companies can provide the basis for further economic success of the region in which they operate by transferring and diffusing the appropriate technology. They can also help to improve the overall standard of living of the population. The transfer and implementation of technological hardware is rarely successful without some form of capacity-building. Companies' capacity-building efforts can range from transferring new skills to their employees (*e.g.* in regions with low literacy rates, or in cases where new hardware also requires new maintenance and repair skills) to the upgrading of existing skills in order to realise the true potential of the technology. Sometimes, capacity-building efforts like education and training are extended to other groups, such as community or school groups, and the inclusion of women and children, which may be vital to the success of a project. Besides improving the outlook for sustainable business practices and increasing individual employees' capacity and knowledge, it increases the value of the companies' human capital.[136]

Box 7. **BP Solar: Capacity building activities in rural areas**

BP Solar, a British Petroleum Group Company, manufactures, designs, markets, and installs a wide range of photovoltaic solar electric products and systems. In remote locations, particularly poor un-electrified communities, solar products and services can be an effective means of meeting essential needs such as lighting for homes, schools, and community centres, as well as remote telecommunication, fresh drinking water, and vaccine refrigeration. Providing such basic equipment to underdeveloped regions means creating better conditions for the attraction of subsequent private investments that could help pursue the goals of various MEAs.

From November 1997 through May 2001, BP Solar was engaged in a Philippine rural infrastructure project that helped to provide health, education and governance benefits to more than 720 000 people in 435 villages. BP Solar was involved in the project from the start, in helping to determine the systems and services necessary to satisfy community needs. The company worked with the governments of Australia and the Philippines to identify the target communities and to design and implement the programmes from beginning to end.

The Municipal Solar Infrastructure Project (MSIP) was conceived, designed, and implemented to improve the quality of life for people living in some of the most remote and poorest areas. A major component of the project was ensuring its sustainability through delivery of training, social preparation and community development programmes. More than 2 200 villagers were trained under this programme.

Site surveys and social validations were initially performed at each village to determine the needs of the communities and whether they had the infrastructure needed for the systems (water source, school building, village, hall buildings, full time health worker etc.). At community assemblies, officials provided an introduction to the project and the basics of solar electricity. This was followed by community organising, forming groups and associations who would ultimately manage the systems. Municipal Engineers and operatives were then trained on the more technical repairs and maintenance of the system components. After the commissioning and handover of each system, BP conducted three separate visits to follow up with the groups and organisations that were formed.

For over 15 years, BP has been supplying equipment and systems to rural development projects as part of the company's commercial business. Such projects have been considered to be good business, both in terms of profitability and in terms of environmental and social contribution, while the company has the opportunity to develop experience in delivering this form of comprehensive projects.

Source: WBCSD, Case Studies, <www.wbcsd.org>.

135. OECD (2000).

136. UNIDO/WBCSD (2002), *Developing Countries and Technology Cooperation – An Industrial Capacity-Building Perspective*.

Capacity building needs under selected MEAs

Capacity building is an important element for achieving environmental as well as investment policies' objectives. For this reason, it has received considerable attention in the three Rio Conventions and in the Montreal Protocol. All MEAs considered here provide for capacity building through a variety of measures, including those on exchange of information, technical and scientific co-operation, research and training, etc.[137] While there are a number of general capacity building needs common to all MEAs (*e.g.* strong and appropriate institutions and human resources), specific needs, particularly in developing countries, vary under the different agreements.

Capacity development requirements which are relevant to climate change issues include capacity to identify and monitor main sources of GHG emissions; to develop greenhouse gas inventories, and to assess mitigation and adaptation options in the context of environmental management strategies. They also include capacity to formulate national programmes to address climate change as part of national development plans, including measures for adapting to the impact of climate change (particularly for countries identified to be vulnerable to climate-related natural disasters). Many countries also require assistance to develop the policy and institutional framework necessary to attract private investment in support of climate-friendly projects, and to take advantage of opportunities arising from financial mechanisms, such as the CDM.[138]

The need for capacity-building to help especially developing country Parties respond to climate change has long been recognised by the UNFCCC's work on such issues as technology transfer, funding, etc. The Convention has established a "Subsidiary Body for Scientific and Technological Advice" (SBSTA) which provides advice on "ways and means of supporting endogenous capacity-building in developing countries"[139]. Capacity-building cuts across many of the issues under consideration in the climate change process, and has featured in several COP-decisions.[140]

Capacity building requirements relevant to biodiversity include assessment of the impact of habitat loss on biodiversity, especially in relation to forests; research on indigenous knowledge of conservation of forest resources; the establishment of long-term reliable access to relevant scientific information networks and data bases, including notably through internet; and human resource development in a wide range of scientific disciplines including ecosystem management, taxonomy, and information technology.[141]

Various COP decisions address capacity-building issues for the protection of biodiversity. Both the 19th session of the Biodiversity Forum and the 7th COP (2004) addressed "technology transfer and capacity building with equity" as a key issue for implementing the CBD. In order to implement the CBD with the support of the GEF, it was agreed that objectives should include "expanded engagement of the private sector, further development of innovative financial mechanisms, intensified capacity-building and comprehensive stakeholder participation".[142]

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137. OECD (2002b), *Foreign Direct Investment for Development – Maximising Benefits, Minimising Costs: Overview*.

138. OECD (2002a).

139. UNFCCC, Article 9.

140. UNFCCC, Issues, Capacity Building, <http://unfccc.int>.

141. OECD (2002a).

142. UNEP-WCMC/CBD (2004), *Protected Areas and Biodiversity*.

Box 8. **SC Johnson: Capacity building to create biodiversity markets in Kenya**

Pyrethrum, a unique daisy grown by subsistence farmers in the highlands of Kenya, is the source for a naturally occurring insecticide that degrades quickly back into the earth. Over the past 30 years, SC Johnson has become one of the biggest single end users of natural pyrethrins for household insecticide products. Since 1970, SC Johnson has worked directly with the Pyrethrum Board of Kenya (PBK), a parastatal agency that manages the entire pyrethrum business in Kenya through a network of farmer cooperatives.

This relationship has since extended considerably beyond that of a normal supplier-purchaser relationship, characterised increasingly by a strong degree of knowledge and technology exchange. In the early days, there was a focus on exchanging skills and knowledge pertaining to crop husbandry as well as education and training. However, the focus of the efforts shifted in the last ten years. More recently, the main challenge was to help PBK to reach higher standards as a supplier, especially in regard to its ability to provide a reliable, consistent supply level of pyrethrum. By introducing SC Johnson's Quality Assurance Audit to PBK in 1995, at a time when processes were significantly below established SC Johnson quality criteria, efforts were directed at helping PBK reach this global standard.

SC Johnson has helped PBK develop planning and forecasting abilities through sharing of best practice examples and on-going advice regarding establishment and maintenance of a safety stock to help offset harvest shortages. Furthermore, it has provided technical assistance to PBK in the form of bio-efficiency testing protocols and tools to allow for a better comparison of results between products tested at PBK in Kenya and at SC Johnson in the U.S. In addition, SC Johnson has also collaborated in the development of up-to-date analytical chemistry methods that have aided in the identification of new and different pyrethrum extracts. As a long-term capacity building effort, there has been a notable improvement in product quality and a rise in production standards.

Source: UNIDO and WBCSD (2002), Developing Countries and Technology Cooperation – An Industrial Capacity-Building Initiative.

In the area of combating desertification, assistance is required for the establishment or strengthening of early warning systems; mechanisms for assisting persons internally displaced due to environmental degradation; drought preparedness and management systems, including storage and marketing facilities in rural areas; the promotion of alternative livelihood projects to provide incomes in drought-prone areas; and the development of sustainable irrigation programmes for crops and livestock.[143] The UNCCD has particularly stressed the significance of capacity-building to combat desertification and mitigate the effects of drought.[144]

The Montreal Protocol, recognising the special situation of developing countries, sees the success of capacity building efforts as being inseparably linked to "the effective implementation of the financial co-operation as provided by Article 10 and the transfer of technology as provided by Article 10A".[145] Efforts to meet compliance targets of the Montreal Protocol aim at building national capacity by strengthening the "chain of responsibility", *i.e.*, the capacity of critical persons and institutions in the implementation process. Capacity building measures may include training for government officers who are responsible for national implementation plans and policies in compliance with the treaty; customs and enforcement officials who control the trade with ODS; as well as industry managers and specific technical staff, who both have a direct influence on relevant production processes. In recent years, the Protocol has successfully promoted capacity building in Article 5 Parties by projects funded by the Multilateral Fund and implemented by UNEP DTIE (Division of Technology, Industry and Economics) in more than 120 countries.[146]

143. OECD (2002a).

144. UNCCD, Article 19.

145. Montreal Protocol, Article 5.5.

146. Input from UNEP officials.

Education and training, participation and awareness

Common needs

For the successful implementation of MEAs (particularly in developing countries), it is vital to increase the level of education and training, as well as participation and awareness of employees and the local population in general. Achieving a certain minimum level of education is important with a view to a country's ability, both to attract private capital flows and to maximise human capital spillovers from the presence of foreign enterprises. Education and training measures are therefore seen as part of capacity building and private investment plays an important role in various ways.[147]

Private companies contribute directly to a higher level of education by providing training and on-the-job learning opportunities to their employees. Empirically, in developing countries MNEs tend to provide more training and other upgrading of human capital than do domestic enterprises. By investing in training measures, foreign companies not only contribute to their own success but also create positive spillovers to other enterprises and the population in general. Companies that are linked to the MNE, *e.g.* local suppliers, may also benefit from a higher level of education, as well as information, about alternative production methods and processes, etc. Such enhancement can have further effects as employees move to other firms and as some employees become entrepreneurs.[148]

Where education and training are necessary components of projects carried out in developing countries, foreign investors often have to overcome particular challenges and obstacles. Training and communication may be impeded because of language difficulties, low education levels that sometimes do not allow the use of written training material, or the availability of appropriate training facilities. The latter often appears in remote regions where gathering people in one place represents logistical problems, or where the lack of electricity makes it impossible to use training materials such as videos, computer presentations, or even overhead projections.[149]

147. OECD (2002b).

148. OECD (2002b).

149. UNIDO/WBCSD (2002).

Box 9. **Bayer CropScience: Integrated crop management projects in Brazil and Guatemala**

Bayer CropScience developed an Integrated Crop Management (ICM) training programme for farming families in Latin America. The pilot project began in Brazil in 1995, and in 2001 led into a Public-Private Partnership Project in Guatemala with Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), a German government-owned corporation for international co-operation. Bayer CropScience's example shows how social, ecological, and economic objectives can be combined while making significant progress towards implementing the goals of the Convention on Biological Diversity.

The overall campaign was based on the basic concepts of Integrated Crop Management (ICM), which includes the protection of natural resources and the conservation of biodiversity, as well as Integrated Pest Management (IPM) for weed, pest, and disease prevention. A broader focus was on crop diversification and market development for agricultural produce. In Guatemala, the programme is also aiming to conserve biodiversity by avoiding unsustainable expansion activities by farmers who leave their unproductive land in search of "new lands" for agricultural purposes in tropical rain forest area.

Participatory training approaches in communities, with an emphasis on all family members (including especially women and children), formed the cornerstones of this campaign. Children were actively involved in the campaign, as they were important communicators in regions where they often received more education than their parents. Training sessions involved a mix of communication tools, including demonstration plots, radio programmes and a "lead farmer" approach. Special attention was also given to finding appropriate methods for conveying information to the many beneficiaries that could not read or write. Visual materials such as films, educational comic strips, card games, and posters containing pictograms were among the most effective tools used.

In Brazil, the programme reached 25 000 small-scale farming families between 1995 and 2000, including 1 300 teachers and 2 500 children. In Guatemala, about 3 000 people attended the training sessions in the first 6 months. Positive results were recognised in relation to crop and pest management aspects; new cultivation techniques are improving practices, contributing to increased yields and more sustainable livelihoods of farmers as the project progresses. Positive results have already been achieved in peanut production, where yields and earnings have tripled.

Source: UNIDO and WBCSD (2002).

Despite all the potential benefits of private investments in education and training measures of local populations, general public education in the host country remains essential. The beneficial effects of training provided by private companies can only supplement, not replace, generic education. However, MNEs indirectly contribute to a generic increase in skill levels by providing a useful demonstration effect, as the demand for skilled labour by these enterprises represents for host-countries an early indication of what skills are in demand. While challenged to meet this demand in a timely manner, national authorities contribute to a higher education level that does not implicitly favour specific companies.[150]

Enhancing the level of education is also important because it helps to raise the population's awareness and understanding of environmental problems. The public may then actively participate in implementing solutions, *inter alia*, by changes in consumption patterns, or in exerting pressure on governments as well as private companies.[151] Pressure from civil society has become crucial to achieve gradual greening of private investments. Market pressure is increasingly being used as a vehicle to change corporate environmental practices. The public is now more capable of launching effective information campaigns aimed at firms that do not conduct their business in a manner deemed to be environmentally and socially acceptable. A number of high-profile cases involving large multinationals have resulted in a damaged public image, in boycotts of their products and, ultimately, in reduction of their profits and share values.[152]

150. OECD (2002b).

151. OECD (2001d).

152. OECD (2001d).

Specific measures taken under selected MEAs

The Rio Conventions and the Montreal Protocol acknowledge the importance of education and training, public participation and awareness. Several provisions aim at increasing efforts in these fields with the support of public and private sector parties in order to achieve the MEAs' objectives. In all MEAs considered here, the private sector is involved in public education, training, and awareness activities, as demonstrated, *inter alia*, by side-events arranged at the COP or MOP meetings.

At its 8th meeting in 2002, the COP to the UNFCCC[153] adopted the five-year "New Delhi work programme" with the goal to undertake activities "at the national level in order to enhance climate focused education and training programs, increase the availability and dissemination of information on climate change, thereby improving public understanding and participation in climate change issues".[154] Education, training, participation, and awareness issues are part of the "national communication", a report by the Parties to the UNFCCC indicating the steps they are taking to implement the Convention.

The CBD seeks to maximize public education and awareness by integrating biodiversity needs in, among other things, information campaigns through media, or educational and public awareness programs.[155] The "Global Initiative on Biological Diversity Public Education and Awareness" brings together different international organisations (*e.g.* UNESCO and UNEP), scientific institutions, and NGOs, in order to identify priority activities and work out effective strategies. The private sector is invited "to become an active player" in this initiative.[156] In addition, the COP decided to "convene an informal advisory committee on communication, education and public awareness".[157]

Public education and awareness is also of great importance to the objectives of the UNCCD. This MEA provides for "public awareness and educational programmes"[158] and emphasises the significance of these aspects in national action programmes.[159]

The Montreal Protocol calls for co-operation of the Parties in "promoting public awareness of the environmental effects of the emissions of controlled substances and other substances that deplete the ozone layer".[160] In some countries, companies have successfully supported the Montreal Protocol by raising public awareness through publicity campaigns (for example, using voluntary labels indicating "ozone friendly" or "CFC-free" products).[161]

153. The UNFCCC provides for education, training and public awareness in Articles 4.1(i) and 6.

154. UNFCCC, Issues, Education and Training, <http://unfccc.int>.

155. The CBD provides for "Public Education and Awareness" in Article 13.

156. CBD, COP decision VI/19, <www.biodiv.org>; CBD, Global Initiative on Biological Diversity Public Education and Awareness, <www.biodiv.org>.

157. CBD, COP decision VII/24, <www.biodiv.org>.

158. UNCCD, Article 19.3.

159. UNCCD, Article 10. The UNCCD further relates to public education and awareness issues in Articles 5 (d) and 16 (b).

160. Montreal Protocol, Art. 9.

161. Input from UNEP officials.

Access to, transfer, and diffusion of technology

General considerations

Access to environmentally sound technologies in both developing and developed countries is essential for achieving the basic goals set out in MEAs. Agenda 21 defines environmentally sound technologies as those that "protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes. […] Environmentally sound technologies are not just individual technologies, but total systems which include know-how, procedures, goods and services, and equipment as well as organisational and managerial procedures."[162]

Private companies transfer technology through loans, commercial sales, joint ventures, the licensing of intellectual property rights and foreign direct investment. Government incentives can stimulate private involvement in the transfer of technologies, particularly where a technology market is still in the process of developing.[163]

MNEs often have relatively advanced and less environmentally damaging technologies as well as the appropriate know-how which can be at the core of technology transfer to those areas that are yet to benefit from innovations and technological progress.[164] Owners of environmentally sound technologies may see their markets hugely expanded, and new fields for investments opened, *inter alia*, through new policies developed by governments to promote and facilitate access to such technologies. Conversely, by gaining access to such technologies, domestic investors in recipient countries increase their capacity to improve existing production methods, or develop new ones, both of which can support the implementation of various MEAs.

Private investments are particularly important for the transfer and diffusion of technology to developing countries and economies in transition, where correctly implemented, appropriate technology can help improve environmental performance as well as alleviate poverty. While technology transfer financed by the GEF amounted to approximately USD 5 billion (sum of the average annual values 1998-2000), technology transfer through FDI totalled approximately USD 170 billion (in 2001).[165]

Capacity building plays a major role in transferring technology. For the development of industrial technological capabilities and economic growth it is important that physical technologies are accompanied by a transfer of knowledge and skills as well as the development of an appropriate institutional and legal framework (development of long-term institutional linkages and partnerships, set up of evaluation programmes, etc.).[166]

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162. UNEP, Agenda 21, Chapter 34, <www.unep.org>.

163. UNEP and OECD/IEA (2001), *Technology without Borders – Case Studies of Successful Technology Transfer*.

164. OECD (2001d).

165. UNFCCC (2003b); OECD (2002c), *Creditor Reporting System on Aid Activities: Aid Activities Targeting the Objectives of the Rio Conventions 1998/2000*; World Bank (2003), *Global Development Finance 2003 – Striving for Stability in Development Finance*.

166. Pachauri, R. K. (2001), *Climate change and technology transfer*; UNIDO/WBCSD (2002).

Foreign investors can also create other positive technological spillovers to national firms by transferring technology, *e.g.* through imitation, employment turnover, and supply chain requirements. The presence of MNEs appears to generate technological spillovers amongst supplier industries by demanding particular quality standards, and providing the technical assistance needed to meet these standards. Other spillovers arise as local firms recruit staff previously employed by MNEs, thereby gaining access to expertise which may not be readily available locally, particularly if the multinationals have strong training programmes for their staff.[167]

Box 10. **Lafarge DuJiangYan: Technology transfer through joint ventures**

In 1999, the building materials company Lafarge entered a technical assistance joint venture agreement with DuJiangYan Building Materials Corporation, China, to form the Lafarge DuiJiangYan Cement Company. The specific objectives of this project were to construct a new cement plant with state-of-the-art dry process technology, a new quarry, and a railway for transporting materials. While divided in three separate turnkey-projects in co-operation with three Chinese design and construction firms, the new company's goal was for each to be built according to Lafarge quality, environmental, and safety standards. As part of the project, a more open management structure was adopted to encourage information sharing at all levels, and a commitment to targets and quality standards was made by all parties.

Lafarge's "best practices" were transferred during the construction phase of each project, in particular those relating to quality, safety and environment standards. The Lafarge team worked with the design and construction firm's management teams to transfer skills and capabilities in manufacturing, installation, and project management. Specifically, implementation of a Technical Assistance Agreement that saw Lafarge provide managerial and technical expertise, reporting procedures, comparative data, training and advising capabilities to the joint venture company. Intensive training programmes were carried out to ensure that all personnel were adequately informed and equipped with appropriate skills to manage and operate the plant in accordance with Lafarge's policies.

For many participants, this was the first time they had collaborated with an international company and worked on such a large-scale project. Today, the plant is equipped with the world's most advanced technologies, and is noted for its environmental friendliness, fuel and electricity efficiency, and high quality. As a result of this project, local construction capabilities have been developed that will contribute to ongoing regional economic development, particularly that related to new process technologies, environmental protection, and high grade products.

Source: UNIDO and WBCSD (2002).

Provisions regarding government action to facilitate technology transfer play a major role in all three Rio Conventions and the Montreal Protocol. Among these provisions, those related to the adequate protection of technology by patents or other intellectual property rights are of particular relevance for investors. Conversely, protection of patents and related rights should not be implemented in ways that would run counter to the objectives under a Convention.

The issue of intellectual property rights (IPRs) plays a major role in the dissemination process of appropriate technologies. The World Trade Organisation (WTO) and the current patenting regime aim at covering more and more countries to assure internationally secure IPRs. According to one author, "It should therefore be possible that contractual arrangements between developed and developing country organisations minimise the possibility of disputes or misuse of intellectual property rights. This will create a number of opportunities for joint technology development, which might even be achieved at substantially lower cost than if the technology were developed solely in an industrialised country."[168]

The British Commission of Intellectual Property Rights carries out research in the field of how national IPR regimes may best be designed to benefit developing countries within the context of international agreements. An appropriate intellectual property protection is seen as an incentive for companies (and

167. Blösstrom, M./Kokko, A. (1996) and Panayotou, T. (2000) as quoted in OECD (2001b).

168. Pachauri, R.K. (2001).

individuals) to invent and develop new technologies. These, in turn, are potentially beneficial to both environmental as well as social objectives (*e.g.* poverty reduction).[169]

Box 11. **Government support to create business opportunities for technology diffusion**

Rural electrification is an important component of Brazil's development plan. To meet the energy demands of off-grid communities, Brazil's Ministry of Mines and Energy undertook a special programme for local energy development, called PRODEEM[170]. After the failure of the initial approach, consisting of public-sector provision of renewable energy sources such as photovoltaic panels, mini-hydro turbines, wind turbines and biomass fuels, the government turned to a decentralised market-based strategy. Delivery mechanisms were put in the hands of local entities, while PRODEEM acts as a co-ordinator of markets to facilitate private investments.

Rural consumers in Brazil have limited buying power, but they do spend money to purchase kerosene, LPG and batteries. The key to success is to aggregate the demand of these communities up to a size that will attract suppliers and to engineer the financing to match the consumer's buying power. PRODEEM makes managers responsible for developing plans and delegating tasks in their region. Regional market managers pull together enough residential, community and commercial demand to form an attractive energy market. They train local entrepreneurs and form links with renewable energy service providers. These efforts at market identification and consolidation result in attracting investors.

PRODEEM mobilises local people and businesses to carry out "on the ground activities". Incentive packages are tailored to make electrification projects in these communities attractive business opportunities. PRODEEM forms partnerships with local businesses, NGOs, utilities, energy-equipment manufacturers, banks, universities, and vocational schools. Starting in 2005, it is planned that all activities will be carried out by market agents. The role of government will be limited to setting policy, administrative co-ordination, and market analysis.

Source: UNEP and OECD/IEA (2001), Technology without Borders – Case Studies of Successful Technology Transfer.

Specific technology needs and measures under selected MEAs

The UNFCCC emphasises the transfer of technology as a very important element in the process of climate change mitigation. The Convention contains provisions regarding technology development, application, diffusion, and transfer, as well as financing, to be facilitated and promoted by the Parties to the Convention[171]. This commitment is echoed in similar provisions under the Kyoto Protocol. At each session, the COP to the UNFCCC has taken decisions to promote the development and transfer of environmentally sound technologies. For instance, the COP established the Expert Group on Technology Transfer (EGTT)[172], with the goal of analysing and identifying "ways to facilitate and advance technology transfer activities". The UNFCCC process also promotes environmentally sound technologies through the dissemination and sharing of information about best available technologies. For this purpose, the Parties requested the Convention Secretariat, at the 7th COP meeting to "accelerate its work on the development of a technology transfer information clearing house (TT clear)" and to enhance the "technology information centres and networks".[173]

169. CIPR (2002), *Integrating Intellectual Property Rights and Development Policy*.

170. Programa de Desenvolvimento Energético de Estados e Municípios (PRODEEM).

171. UNFCCC, Article 4.

172. UNCCCC, decision 4/CP.7.

173. UNFCCC, decision 4/CP.7, <http://unfccc.int> and <http://unfccc.int/issues/technology.html>.

Access to and transfer of technologies for the conservation and sustainable use of biodiversity are considered essential for the attainment of all three objectives of the CBD.[174] The importance of "appropriate transfer of relevant technologies" is reflected in Article 1 of the Convention and further referred to in Article 16. In this context, measures to foster private investment are an important element of a legal, administrative, and policy environment conducive to technology transfer for the purpose of the Convention. The private sector's role in facilitating access to, joint development of, and transfer of technology is recognised in Article 16.4 and also reflected by the work programme of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA)[175]. The SBSTTA is supposed to identify "innovative, efficient and state-of-the-art technologies and know-how relating to the conservation and sustainable use of biological diversity and advise on the ways and means of promoting development and/or transferring such technologies". The central importance that Parties attach to this subject is further underlined by the fact that the COP has, at each of its meetings, adopted decisions that confirmed the need for technology transfer and co-operation.[176]

Several provisions of the UNCCD refer to the transfer and diffusion of appropriate technologies to developing countries. Article 12, for example, provides for international co-operation, and Article 18 calls for the "transfer, acquisition, adaptation and development of technology" as well as the facilitation of the necessary financing. A Committee on Science and Technology, informing and advising the Parties on scientific and technological matters, is established in Article 24. By providing direct investments, the business sector is expected to contribute to win-win situations for soil conservation and income generation.

The business sector can contribute to combat desertification in various ways, including transfer and development of suitable technologies, and training of skills necessary for the use and maintenance of new technology. Positive contributions also include spillovers through the mobility of skilled workers towards domestic enterprises, as well as through strengthened potential for endogenous technology development. In situ investments by the oil and extraction industry in rehabilitating mining/extraction areas may foster sustainable development, as well as advancement of technology transfer in the field of hydrophonic cash crop production for winter exports to developed country markets. Research activities aiming at developing new production and processing methods, as well as new plant species (*e.g.* with pharmaceutical or cosmetic potential) that are adjusted to the dryland ecosystems may also support the implementation of the UNCCD.[177]

In terms of technology, the success of the Montreal Protocol has been particularly dependant on the business sector's efforts in developing and diffusing alternative technologies that allow elimination of the use of ODS. Article 10 of the Protocol calls for the transfer of "the best available, environmentally safe substitutes and related technologies" to developing countries. In ODS-consuming industries, domestic and multinational corporations make substantial investments in alternative technologies on their own account for mostly economic reasons. The "Technology and Economic Assessment Panel" (TEAP)[178] under the Montreal Protocol comprises many experts, including representatives of the business sector. It is

174. The three objectives of the CBD as set out in Article 1 are: "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources".

175. The Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) was established under Article 25 of the CBD.

176. CBD (2003), *Technology Transfer and Cooperation*.

177. Input from UNCCD Secretariat.

178. The TEAP was established in compliance with Article 6 of the Montreal Protocol providing for "Assessment and review of control measures".

responsible for conducting an assessment of the control measures and reporting to the Parties about state-of-art of technology production and use; options to phase out the use of ODS; as well as recycling, re-use and destruction techniques. It also assesses economic effects of ozone layer modification, and economic aspects of technology issues.[179]

Research, technical and scientific co-operation

General considerations

Business sector engagement in research activities, and technical and scientific co-operation plays an important role in promoting innovation and development of environmentally sound technologies and production processes. Private companies often dispose of the necessary financial, human, and other capacity for research activities that may produce environmentally-friendly solutions. Successful implementation of MEAs is therefore inextricably related to private investments in research activities, particularly since governments alone are not able to provide marketable solutions. Subjects of research activities include process machinery and equipment, manufacturing techniques and production know-how, as well as broader organisational, managerial, and marketing knowledge that contribute to the development of new skills.[180]

In terms of research, long-term partnerships for technical and scientific co-operation play a major role in efficiently contributing to environmental and social development goals set out in MEAs. Chapter 30 of Agenda 21 asks governments to "promote technological and know-how cooperation between enterprises, encompassing identification, assessment, research and development, management marketing and application of cleaner production". On the other hand, it recommends that business and industry collaborate with academia as well as scientific and engineering establishments to carry out increased research, while also recognising (and integrating) indigenous knowledge where appropriate.[181]

Research needs under selected MEAs

The Parties to the Rio Conventions and the Montreal Protocol have undertaken a variety of commitments to support research activities contributing to the implementation of their objectives.

Parties to the UNFCCC, for example, have provided for technical and scientific research co-operation including the "open and prompt exchange of relevant […] information"[182]. According to Article 5, research activities in the field of climate change should be ensured by providing the necessary financing as well as the necessary support for developing research capacities. "Research and systematic observation" were subject to several COP and SBSTA meetings, and identified as one of three areas which could be considered regularly by the SBSTA.

Private investments in research activities aimed at climate change mitigation are most valuable in a number of specific areas. The development of renewable energy technologies such as wind and solar energy,

179. Input from UNEP officials; UNEP/TEAP, <www.teap.org>.

180. UNIDO/WBCSD (2002).

181. UNEP, Agenda 21, Chapter 30.

182. UNFCCC, Article 4.1 (g) and (h).

research in hydrogen and fuel cell technologies that help to generate power in an environmentally-friendly way, are among the major R&D areas.[183] There is also an interest in non-energy areas where more research is needed. An example is the field of carbon sequestration that aims to reduce or slow the build-up of CO_2 concentration in the atmosphere by storing carbon in the terrestrial biosphere, underground (geosequestration), or in oceans.[184] The private sector may also engage in research activities related to the design of forestry and agriculture systems with the goal of reducing emissions but also maximising other objectives such as bioenergy or biofuels production. Other climate change research in the agriculture sector includes examining methods to reduce methane emissions from cattle and sheep, for example through the development of new vaccines.[185]

An example of technical and scientific co-operation is the "Reduced Tillage Linkages" (RTL) programme that aims to increase the adoption of sustainable production systems by farmers in the Canadian province Alberta. A sustainable production system provides an integrated approach to addressing priority environmental and economic issues for agriculture. Cropping systems, such as direct seeding, have a wide range of benefits including soil conservation and improved soil quality; increased profitability; improved water, air, and also food quality; enhanced biodiversity; and reduced GHG emissions, improved carbon sequestration and energy conservation. The RTL programme is a unique partnership with broad-based farmer, industry, educational, wildlife, and government support. Among the industry partners are Monsanto, BASF, and Dow AgroSciences. The partners have pooled financial and in-kind resources to develop an extension programme focused on further improving the environmental and economic sustainability of farming.[186]

Under the CBD, Parties have committed to promote "technical and scientific cooperation", as set out in Article 18 of the Convention. The importance of research, co-operation, and exchange of information is reflected by the multitude of Articles referring to this subject, providing, for instance, for the development and implementation of scientific research based on genetic resources[187], and for facilitating the exchange of information[188]. COP 6 referred to the clearing-house mechanism, inviting Parties to use this mechanism in order to effectively cooperate. The clearing-house mechanism was established to (i) promote and facilitate technical and scientific co-operation within and between countries, (ii) develop a global mechanism for exchanging and integrating information on biodiversity, and (iii) develop the necessary human and technological network.[189]

The private sector plays a major role not only in financing but also in carrying out research in the field of biodiversity to support the goals of the CBD. Taxonomy, the identification and categorisation of species, for example, is of particular interest for pharmaceutical and drug companies and research in this field may contribute to both economic success and the protection of biodiversity. Innovations in the agricultural or medicinal sectors are often based on the understanding of the relationships between plants, and the accurate identification of plant species and their subcategories.[190] The business sector may also carry out

183. See, for example, <www.fuelcells.org>; <www.nrel.gov/>.

184. US Department of Energy, Office of Science, <http://cdiac2.esd.ornl.gov/>.

185. Science Daily, Vaccinating Animals to Reduce Greenhouse Gas Emissions, 11.06.2001, <www.sciencedaily.com>.

186. Reduced Tillage Linkages, <www.reducedtillage.ca/>.

187. CBD, Article 15.6.

188. CBD, Article 17.

189. CBD, Clearing-house mechanism, <www.biodiv.org>.

190. University of Florida, Environmental Horticulture, <http://hort.ifas.ufl.edu>.

research in biodiversity compatible activities like, for instance, enlarging the ability to set up organic farms, production capacities, or also the capacities of financial markets to operate in this field. Other fields of research that benefit from private sector engagement are the viability of ecosystems, *i.e.* analysing how large an ecosystem has to be in order to be viable, as well as the impact of intellectual property rights regimes on private investment.[191]

The UNCCD identifies a number of measures to support the implementation process. Part III, Section 2 of the Convention[192] concerning technical and scientific co-operation calls, among other issues, for networking of institutions for the collection, analysis, harmonisation, and dissemination of information; utilisation of the expertise of competent organisations; research on the desertification process and its consequences; protection, promotion, and use of traditional knowledge; as well as identification, development, and application of suitable technology. Particular emphasis is given to addressing the needs of local populations, and involving local communities in technical and scientific co-operation.[193]

Private investment in the context of desertification-related issues may include research and development of land use and farming practices that increase productivity while maintaining and improving the natural resource base. In this regard, research and development of technologies which facilitate economically and environmentally sustainable use of natural resources in drylands is of particular importance. During recent years, much ecological research on desertification has focussed on developing rehabilitation programmes for dry areas as well as land use systems taking into account the natural restrictions of drylands. In order to contribute to the objectives of the UNCCD, desertification and land degradation processes need to be measured. New remote sensing systems, *i.e.* satellite-based and airborne systems, are needed to monitor desertification and to assess the current status of resources. This is where the business sector can make a valuable contribution due to its technological competences.[194]

191. OECD (2003d).

192. UNCCD, Articles 16, 17 and 18.

193. Input from UNCCD Secretariat.

194. Input from UNCCD Secretariat; Desert Net, <www.desertnet.de>.

Box 12. **Technical and scientific co-operation through joint research**

Austroprojekt Ltd. is an independent Austrian consulting agency specialised in planning, implementing, and evaluating sustainability projects which contribute to poverty reduction in rural areas, especially in Africa. With a joint research project in Ouneine, Morocco, carried out between 1998 and 2002, Austroprojekt aimed at elaborating an efficient strategy to combat erosion thus contributing to the goals of the UNCCD.

The Ouneine project was done in collaboration with Austroprojekt, scientists of the Institut Agronomique et Vétérinaire Hassan II in Rabat, and the Department of Water Management, Hydrology and Hydraulic Engineering of the Agricultural University in Vienna. Among the private financiers of the project was Sanoway Corp., another Austrian company. Sanoway has been conducting applied research in the field of natural silicates. One of its innovative environmentally sound technologies is called Sanoplant, a natural soil amendment of silicate powder, which makes water savings of up to 50 per cent possible. Saving is reached by increased water retaining ability of the soil and longer duration of the water holding. At the same time, Sanoplant stores nutrients in the soil.

The objective of the Ouneine project was to examine how the water storage capacity of Sanoplant may serve the processes of plant rooting and growth, as well as how Sanoplant may protect the plants during the dry season.

The execution of the development project in the Ouneine valley showed the need for a better understanding of the interaction of different environmental, agricultural, and social variables. In order to constitute a comprehensive data source, the joint research teams gathered basic data on hydrology, topographical features, vegetation, renewable energy resources, and socio-economic resources. The results provide valuable information about the development potential in the valley, and should serve as a basis for future action and constitute a model for similar interventions in marginal mountain areas.

Source: Global Mechanism UNCCD, FIELD, <www.gm-unccd.org> et al.[195]

The successful implementation of the Montreal Protocol also depends on joint research activities between private and public actors. The focus of research is to develop alternatives for ODS, ODS-containing products, or products manufactured with ODS, and technologies that improve "the containment, recovery, recycling, or destruction of controlled substances".[196] While government laboratories undertake primary research and development in certain areas, the private sector assumes the majority of the costs for research and development for commercial products. Research co-operation could aim at, for example, improving mobile air conditioning relying on HFCs (hydrofluorocarbons); avoiding creation of new ODS; or developing "optimal" alternatives that approach, as far as possible, environmental and worker safety, performance and cost issues.[197]

Environmental assessment

Overview

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before the decisions are made. The process involves analysing and recording the likely impacts on the environment; undertaking a public consultation exercise on the report; taking into account both report and comments when making the final decision; and informing the public about the decision. In

195. Wittich, S. (1999), *Report by Austria – On Measures Taken to Support the Implementation of the Convention to Combat Desertification in Affected African Country Parties*; Austroprojekt Ltd., <www.austroprojekt.com>; Sanoway Corp., <www.sanoway.com>.

196. Montreal Protocol, Article 9.1.

197. Input from UNEP officials.

principle, environmental assessment can be undertaken for individual projects such as a dam, motorway, airport or factory ("Environmental Impact Assessment") or for plans, programmes and policies ("Strategic Environmental Assessment").[198]

Environmental assessment is increasingly seen as a key part of the decision-making process of private and public investors. Many governments are required to assess the impacts of their policies, and investors (whether private or public, domestic or foreign) to assess the environmental impacts of projects prior to their approval. Development banks also generally require that the environmental impacts of projects they intend to support or sponsor be assessed. Financial institutions, including private investment banks and export credit agencies, are increasingly including environmental considerations in their financial risk assessment and decision-making processes.[199]

Box 13. **Citigroup: Enhancing environmental risk assessment**

In January, 2004, Citigroup together with Rainforest Action Network announced the adoption of a comprehensive environmental policy setting a new standard for the financial services industry. By introducing this long-term framework, Citigroup aims to promote higher environmental standards through its business practices.

Citigroup's new policies and programmes support and even extend the formerly signed "Equator Principles" – a framework for financial institutions in determining, assessing, and managing environmental and social risk in project financing.[200] With its new environmental policy, Citigroup promotes the implementation of special measures aimed at protecting "high-caution zones", *i.e.* areas whose ecological or social fragility must be taken into account if development occurs. It also articulates policies addressing the complex problems of illegal logging and climate change as well as a renewable energy and sustainable forestry investment initiative.

According to these principles, all requests for project finance loans will be carefully evaluated with regard to their environmental impacts. A loan request will be rejected if the borrower is not able to fully meet Citigroup's environmental and social requirements (*e.g.* if the project management cannot prove adequate capacity and willingness to ensure biodiversity protection and respect for the rights of indigenous communities whose livelihoods or cultural integrity could be adversely impacted). On the other hand, Citigroup has developed a programme to identify and improve investment opportunities in the sustainable forestry and renewable energy industries sectors.

Source: Citigroup, Rainforest Action Network and Citigroup Announce Enhanced Citigroup Environmental Policy, <www.citigroup.com>.

Contrary to Strategic Environmental Assessment, which is carried out by governments, in most instances it is the project proponent, *i.e.* the investor, who is responsible for commissioning the Environmental Impact Assessment (EIA). An EIA aims to identify the adverse environmental (and social) consequences of a proposed project, to incorporate mitigation measures to minimise the main risks, and to optimise the beneficial impacts.[201]

198. European Commission, Environmental Impact Assessment, <http://europa.eu.int/comm/>.

199. OECD (2001e).

200. Equator Principles, <www.equator-principles.com>. As of 3 March 2005, 29 multinational banks have adopted this voluntary and independent industry approach, recognising in its preamble: "Project financing plays an important role in financing development throughout the world. In providing financing, particularly in emerging markets, project financiers often encounter environmental and social policy issues. We recognize that our role as financiers affords us significant opportunities to promote responsible environmental stewardship and socially responsible development. In adopting these principles, we seek to ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices."

201. Gratzfeld, J. (ed) (2003).

An important element of the EIA process is the investor's obligation to inform the affected public about the proposed project and its likely impacts, and to provide them with an opportunity to voice their views. The decision-making authorities are normally required to take account of public comment and to make their final decision and the reasons for that decision available to the public. EIA also provides a tool for ongoing monitoring of the project, to ensure that all mitigation measures are carried out and the concerns of the affected communities are addressed.[202]

Box 14. **Continuous environmental assessment**

Independent of specific projects, a company may also decide to assess the impacts on the environment of its activities on a regular basis, aiming at continuously improving its environmental performance, thereby contributing to the goals of MEAs.

For example, KPMG as a global provider of advisory services does not impact on the environment in the same way as a manufacturing or distribution enterprise does. However, in the United Kingdom, KPMG recognised that with nearly 12 100 employees in 24 offices, its impact on the environment is not negligible. In October 2000, the firm introduced an environmental policy, committing it to integrating "environmental best practice" into all its business activities. The focus to date has been measuring the main impacts of the firm in regard to water, paper, and energy consumption, office waste, as well as both air and car travel. To minimise these impacts on the environment, KPMG is making several structural and behavioural changes. In 2001, such measures generated savings of £ 250 000.

Source: WBCSD, Case Studies, <www.wbcsd.org>.

First Environment Inc. is an American provider of strategic environmental management and engineering services. In order to assess their own environmental impact, ensure continual improvement, and inform stakeholders about their environmental policy, First Environment decided to endorse the CERES principles, a ten-point code of environmental conduct. In accordance with these principles, the company annually reveals economic, environmental, and social performance indicators. Among other environmental impacts, First Environment launched a "GHG Initiative", with the goal to identify, measure, and establish a baseline of greenhouse gas production related to First Environment activities. CO_2 emissions are identified and measured in several categories: office materials used, natural gas consumed, electricity use, business travel, employee commute, and disposable field work equipment. The results are published together with other environmental, economic, and social performance indicators.

Source: First Environment Inc., <www.firstenvironment.com>.

Measures taken under selected MEAs

The Rio Conventions require Parties to subject projects to prior assessment of their impacts on the environment – and particularly, on climate change, biodiversity, and desertification, respectively. There is no requirement under the Montreal Protocol for an enterprise to conduct an EIA or other assessment prior to adopting or after the introduction of a new technology.

Under the UNFCCC, Parties commit to "employ appropriate methods, for example impact assessments […] of projects or measures undertaken by them to mitigate or adapt to climate change".[203] At COP 3 (1997), Parties requested the Secretariat to accelerate the development of methodologies for assessing adaptation technologies, in particular decision tools to evaluate alternative adaptation strategies. The purpose is to assist Parties in applying the best available methods to assess their vulnerability to climate

202. OECD (2001e); OECD (1999).

203. UNFCCC, Article 4.1 (f).

change and their mitigation and adaptation options. A workshop on methodologies on climate change impact and adaptation, held in June 2001, emphasised further environmental assessment needs.[204]

The CBD requires each contracting Party, to "introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimising such effects"[205]. Although impact assessment processes are in place and applied in many countries, biodiversity considerations are often inadequately addressed. There is a growing recognition of this fact and the COP has increasingly taken actions to correct this problem. For instance, in decision VI/7 A, the COP endorsed the draft guidelines for incorporating biodiversity-related issues into EIA legislation and/or processes, as well as in strategic environmental assessments.[206]

The UNCCD provides for the "strengthening of capabilities for assessment and systematic observation"[207] under the national action programs. EIA is mainly required from extractive industry operations by mining and petroleum companies that are often carried out in arid and semi-arid zones but also for major infrastructure projects such as roads, pipelines, and power lines. Parties to the UNCCD are required to identify indicators with which to monitor environmental performance since most of the existing standards for emissions and discharges to soil, air, and water have been developed for an urban context.[208]

Potential synergies among MEAs

Potential synergies among MEAs have been explored in some depth in the past, not only by the MEA Secretariats themselves, but also by UNEP and UNU (United Nations University). For example, UNU carries out extensive research to identify "the inherent synergies that exist between different aspects of the environment, and an exploration of the potential for more effective coordination between multilateral environmental agreements"[209]. Inter-dependencies exist, for example, between forests, oceans, wetlands, climate, and biodiversity. There are also common gases that lead to ozone loss, climate change, and acid rain. Research aims to understand the implications of a naturally synergistic global environment for a more effective and efficient approach to problem solving.[210]

In order to effectively deal with these inter-linkages, it is important to consider MEAs within a broader context, taking into account the increasingly complex web of international treaties, conventions, and agreements that are negotiated and implemented in relative isolation from each other. This development

204. UNFCCC, Issues, Methods and Tools to Assess Climate Change Impacts and Adaptation Options; and Methodologies on Climate Change Impact and Adaptation, <http://unfccc.int>.

205. CBD, Article 14.1 (a).

206. CBD (2002), *An Introduction to Funding Guidance of The Convention on Biological Diversity*. COP 7 also emphasises this subject by adopting three different decisions: decision VII/6 "Assessment processes", decision VII/7 "Environmental impact assessment and strategic environment assessment", and decision VII/16 F, *inter alia*, on traditional knowledge and impact assessment.

207. UNCCD, Article 10.4.

208. Gratzfeld, J. (ed) (2003).

209. UNU, Inter-Linkages Initiative, <www.unu.edu/inter-linkages/>; UNEP (1999), *In Search of Linkages amongst MEAs*, in: Synergies, Newsletter Issue 1; GEIC, Interlinkages – Synergies and Coordination between MEAs, <www.geic.or.jp/interlinkages/bground.html>.

210. UNU (1999), *Inter-Linkages – Synergies and Coordination between Multilateral Environmental Agreements*.

hardly allows for synergistic, coordinated approaches to emerge. Attempts to ensure compatibility between different MEAs could include easing knowledge sharing, *i.e.* harmonising information and reporting systems as well as information exchange. This is a key factor for successful synergy exploration, since scientific information is the basis of most aspects of a multilateral agreement. "An important aspect of synergy that can exist between MEAs, lies in the harmonisation of methodologies, procedures, and formats for gathering and analysing information, required of the Parties to environmental and sustainable development agreements."[211]

Crosscutting issues, for which a synergistic approach across different MEAs would be supportive to their implementation, include environmentally sound technology development and transfer; education and capacity building; participatory approaches in policy and decision making; national reporting and planning; protected areas management; trade and investment; human settlement; environmental impact and risk assessment. Financing issues are also an important linkage between MEAs. The GEF, as funding agency for all MEAs in this report, covering the climate change, biodiversity, desertification, and ozone regimes, may be considered as a model for co-operation among MEAs and related institutions. [212]

Among the Rio Conventions, a clear convergence of objectives has been recognised that has led to a range of efforts in order to explore the synergistic potential. Parties to these Conventions have agreed on the need for improved coordination by converging various strategic approaches and developing a broader framework that includes different crosscutting issues. The UNFCCC, the CBD, as well as the UNCCD reflect this need in various provisions.[213] A number of initiatives have already been launched, bringing together the representatives of the different Conventions as well as scientific and other experts.[214]

For example, the UNFCCC Secretariat organised in 2003 a workshop on Possible Synergy and Joint Action with the other Multilateral Environmental Conventions and Agreements, and on Enhancing Co-operation with other Conventions.[215] The scientific subsidiary bodies of the UNFCCC, the CBD, and the UNCCD have agreed to set up a joint working group with the purpose to develop a common understanding of scientific issues.[216] However, synergies not only exist between the Rio Conventions but also extend to other MEAs. For instance, co-operation is being brought forward between the five global biodiversity-related conventions CBD, the Convention on International Trade in Endangered Species of Wild Fauna and

211. OECD (2002a); GEIC, Interlinkages – Synergies and Coordination between MEAs, <www.geic.or.jp/interlinkages/bground.html>.

212. UNU (1999).

213. The provisions covering synergy approaches of the Rio Conventions are Articles 7.2 (l) and 8.2 (e) of the UNFCCC, Articles 5 and 24 (d) of the CBD and Articles 8.1 and 23 (d) of the UNCCD.

214. UNFCCC (2003c), *Report of the Workshops on Possible Synergy and Joint Action with the other Multilateral Environmental Conventions and Agreements, and on Enhancing Cooperation with other Conventions*; OECD (2002a).

215. Another example is the workshop "Forests and Forest Ecosystems: Promoting Synergy in the Implementation of the Three Rio Conventions". This workshop was held in Italy in April 2004 and advocated pilot activities to test and facilitate methodologies "that address, in a coherent and complementary manner, the provisions of all three Conventions". UNCCD, Forests and Forest Ecosystems: Promoting Synergy in the Implementation of the Three Rio Conventions, <www.unccd.int>.

216. Sanwal, M. (2001), *Framework for MEA Cooperation*.

Flora (CITES), the Convention on Migratory Species (CMS), the Ramsar Convention, and the World Heritage Convention (WHC).[217]

Synergies are also being explored between the UNFCCC and the Montreal Protocol and co-operation is already well under way on safeguarding the ozone layer and global climate systems, based on parallel decisions involving the MOP to the Montreal Protocol and the COP to the UNFCCC. Both scientific and technical panels, the Technology and Economic Assessment Panel of the Montreal Protocol, and the Intergovernmental Panel on Climate Change are currently finalising a joint special report that focuses on the impacts of HFCs and perfluorocarbons on the issues addressed under both MEAs.[218]

Box 15. **Synergies between MEAs: Fighting ozone depletion and climate change**

The World Bank has developed new, non-grant or partial-grant financing projects as an alternative approach to the existing grant-financing scheme for possible future ODS phase-out projects. The initiatives are in response to the request of the Multilateral Fund Executive Committee that new financial mechanisms should be explored for future project implementation in order to include countries and enterprises which might not otherwise be eligible for assistance. The Thailand Chiller Replacement Programme and the Mexican Chiller Concessional Lending Pilot Project will replace CFC-chillers used in building air conditioning systems with high-efficiency, non-CFC chillers. The Thailand project will be financed by both the Multilateral Fund and the GEF on a loan basis while the Mexico project combines Multilateral Fund grant funding with counterpart funding from the Mexican government within a newly established revolving fund.

Conversion to new, energy-efficient chillers has the potential to create energy savings as well as to reduce demand for CFCs. However, because the benefits are as yet unproven and the up-front capital cost of investment is significant, incentives were needed to encourage building owners to replace old chillers before the end of chillers' product lives. By providing funds for the new chillers, the programme allows building owners to make the transition while benefiting from energy savings. The goal of the projects is thus to use contingent financing by separate global environmental financial mechanisms (or in the case of Mexico by a global financial mechanism and an Article 5 country government) to demonstrate the feasibility of engaging in large-scale chiller replacement while minimising the impact to chiller owners and the overall economy; and, to reduce CFC-11 and CFC-12 demand (which would arise due to leakage) and carbon emissions (*i.e.* improve energy efficiency). In addition, the projects will test the efficacy and applicability of the innovative financing approach. The successful implementation of these programmes will open up a market for energy-efficient technology which is currently blocked by the existence of market, policy, information or other barriers.

Source: World Bank, Chiller Replacement, The Cases of Thailand and Mexico, <www.worldbank.org>.

Support to the coordination of finance policy and financial flows to MEAs is provided by public and private sector initiatives. However, synergy exploration efforts have not yet explicitly focused on the role of the business sector in the implementation process of MEAs, or on ways to improve attraction and allocation of private investments by cooperative approaches.

Activities that support the synergistic implementation of the Rio Conventions may be beneficial for attracting private investments. Several private companies, in co-operation with developed country governments and multilateral development finance institutions have already expressed their interest in joining funds. Funding for climate change, biodiversity, desertification, or ozone related projects through this channel may become a considerable supplement to the traditional ODA-based development funding. Besides, policy level co-operation for bringing forward greater cohesion between the environmental and trade regimes may have an impact on the attraction of private capital. Trade issues, particularly those negotiated in the context of the WTO, are inter-linked with private investment insofar as enhancing market opportunities for environmentally-friendly products from developing countries, reforming trade distorting

217. CBD, COP decision VII/26 (Cooperation with other conventions and international organizations and initiatives, <www.biodiv.org>; UNFCCC (2003c).

218. Input from UNEP officials.

subsidies, or fostering the internalisation of environmental costs into products may effectively direct private investments to developing countries.[219]

219. Input from UNCCD Secretariat.

Conclusions

The responsibility for addressing global environmental problems rests primarily with governments, and this is reflected in the way MEAs have been negotiated. However, the role of the private sector in contributing to achieving solutions to these global problems is changing. Increasingly, the private sector is becoming an important actor in implementing measures in support of MEAs.

MEAs aim at changing the behaviour of society, or sectors of society, in order to combat specific environmental problems. Therefore, they may have impacts on industries, *inter alia*, by limiting or banning the use of certain substances, modifying the ways in which products are manufactured, energy is used, etc. However, MEAs also provide business opportunities by opening new markets and stimulating the development of alternative products, production processes and new technologies. They can also contribute to fostering new types of partnerships between business and other stakeholders. Alternative technologies in support of MEA implementation have often also proven to be economically successful. In this regard, the Montreal Protocol is widely considered particularly successful. Partly because industry and science have been able to develop and commercialise alternatives to ozone depleting substances, ozone depletion will overcome its worst level in the next few years, and will then gradually decline until the ozone layer returns back to normal in about 40 years.[220]

The business sector is the source of innovations and upgraded technologies that are seen as a prerequisite for a more effective use of resources and improved environmental performance. MEAs form part of the regulatory framework, and are one way to encourage environmentally-friendly innovations. At the same time, voluntary actions by the private sector are a promising approach to support environmental goals under MEAs. It is important to make sure that their objectives represent real progress in achieving environmental performance goals and economy-wide efficiency.

Co-operation is a key issue in pursuing MEAs' objectives and could be further developed at various levels. In this respect, greater coordination and co-operation among MEAs on investment issues would be beneficial, as would a stronger integration of the business sector within negotiations towards resolving global environmental problems, *e.g.* by public-private partnerships of the form represented by "type 2"-initiatives within the WSSD process.

Further work could explore specific linkages between MEAs and private investment in more depth, addressing such questions as: What impact have inter-linkages between different MEAs had on private investments (*e.g.* HCFCs developed to replace CFCs are "good" for achieving the goals of the Montreal Protocol but may be "bad" from a climate change perspective), and how have investors dealt with such conflicts? What have been the impacts of MEAs on market changes and creation of particular goods? How could the business sector further contribute to achieving solutions to global environmental problems through the various MEA processes? How could governments improve conditions to foster more and better private sector involvement, and investments that support MEAs' objectives?

220. UNEP (2003), *Basic Facts and Data on the Science and Politics of Ozone Protection*.

ANNEX 1

Private sector involvement in CBD processes

This annex provides information, collected by the CBD Secretariat, on private sector involvement in CBD implementation processes. Every two years, Parties to the CBD are required to reflect their progress in a "National Report". Guidelines for the Second National Report contained a series of questions, primarily based on the Articles of the Convention. Parties to the CBD were requested to respond to these questions in their Second National Report in order to review the extent to which they are successfully implementing the provisions of the CBD and to assist the COP to assess the overall status of implementation of the Convention. 97 Parties to the CBD provided their Second National Report in May 2001.[221]

Does your country actively encourage cooperation between government authorities and the private sector in developing methods for sustainable use of biological diversity (10e)?

CBD PARTIES (97)

a) no	9 (9%)
b) early stages of development	48.6 (50%)
c) advanced stages of development	10.1 (10%)
d) programme or policy in place	25.4 (26%)
e) review of implementation available	1.9 (2%)
no answer: 2 (2%)	

CBD GROUPS*

	AF	AS	GRULAC	CEE	WEOG
a) no	1 (4%)	4 (17%)	1 (7%)	1 (8%)	2 (9%)
b) early stages of development	9.3 (40%)	14 (58%)	10.3 (69%)	10 (77%)	5 (23%)
c) advanced stages of development	1.3 (6%)	1 (4%)			7.8 (36%)
d) programme or policy in place	11.3 (49%)	5 (21%)	2.3 (15%)	1 (8%)	5.8 (26%)
e) review of implementation available	0.3 (1%)		0.3 (2%)	1 (8%)	0.3 (1%)
no answer			1 (7%)		1 (5%)

* **CBD Groups:** AF – Africa (23 countries); AS – Asia and the Pacific (24 countries); GRULAC – Latin America and the Caribbean (15 countries); CEE – Central and Eastern Europe (13 countries); WEOG – Western European and Others (22 countries).

221. Statistics are converted into percentages. Detailed information can be found in the "Analyzer" at <www.biodiv.org> under Parties/National Reports/Second.

Has your country developed mechanisms to involve the private sector and indigenous and local communities in initiatives on sustainable use, and in mechanisms to ensure that indigenous and local communities benefit from such sustainable use?

CBD PARTIES (97)

a) no	18 (19%)
b) mechanisms under development	51.5 (53%)
c) mechanisms in place	27.5 (28%)

CBD GROUPS

	AF	AS	GRULAC	CEE	WEOG
a) no	3 (13%)	5 (21%)	3 (20%)	5 (38%)	2 (9%)
b) mechanisms under development	13 (57%)	14 (58%)	9.5 (63%)	7 (54%)	8 (36%)
c) mechanisms in place	7 (30%)	5 (21%)	2.5 (17%)	1 (8%)	12 (55%)

Has your country developed training and capacity building programmes to implement incentive measures and promote private-sector initiatives?

CBD PARTIES (97)

a) no	33.5 (35%)
b) planned	22.5 (23%)
c) some	31.5 (32%)
d) many	8.5 (9%)
no answer	1 (1%)

CBD GROUPS

	AF	AS	GRULAC	CEE	WEOG
a) no	8 (35%)	11 (46%)	5.5 (36%)	5 (39%)	4 (18%)
b) planned	7.5 (32%)	6.5 (27%)	2.5 (17%)	5 (39%)	1 (5%)
c) some	5.5 (24%)	6.5 (27%)	4.5 (30%)	2 (15%)	13 (59%)
d) many	2 (9%)		2.5 (17%)	1 (7%)	3 (13%)
no answer					1 (5%)

Has your country taken measures so that the private sector facilitates access to joint development and transfer of relevant technology for the benefit of government institutions and the private sector of developing countries?

CBD PARTIES (97)

a) no measures	57.5 (59%)
b) some measures in place	24.2 (25%)
c) potential measures under review	9.2 (10%)
d) comprehensive measures in place	5.2 (5%)
no answer	1 (1%)

CBD GROUPS

	AF	AS	GRULAC	CEE	WEOG
a) no measures	10.7 (46%)	14 (58%)	10.3 (69%)	8 (62%)	14.5 (66%)
b) some measures in place	6.8 (30%)	8 (33%)	4 (27%)	3 (23%)	2.3 (11%)
c) potential measures under review	2.5 (11%)	1 (4%)	0.3 (2%)	2 (15%)	3.3 (15%)
d) comprehensive measures in place	3 (13%)		0.3 (2%)		1.8 (8%)
no answer		1 (4%)			

Developing country Parties:

Has your country compiled information on the additional financial support provided by the private sector?

DEVELOPING COUNTRY PARTIES (59)

a) no	56 (95%)
b) yes	3 (5%)

Has your country undertaken measures to ensure participation by the forest sector, private sector, indigenous and local communities and non-governmental organizations in the implementation of the programme of work?

CBD PARTIES (97)

a) no	12 (12%)
b) yes – some stakeholders	57.5 (59%)
c) yes – all stakeholders	24.5 (25%)
no answer	3 (3%)

CBD GROUPS

	AF	AS	GRULAC	CEE	WEOG
a) no	6 (26%)	2 (8%)	3 (20%)		1 (5%)
b) yes – some stakeholders	12 (52%)	14 (58%)	8 (53%)	11 (85%)	12.5 (57%)
c) yes – all stakeholders	4 (17%)	6 (25%)	4 (27%)	2 (15%)	8.5 (38%)
no answer	1 (4%)	2 (8%)			

Source: Guidelines for National Reports, <www.biodiv.org/doc/guidelines/nr-02-gd-lns-en.doc>, Second National Reports, <www.biodiv.org/world/reports.aspx?type=second>.

BIBLIOGRAPHY

Adams, Jan (1999), *Foreign Direct Investment and the Environment: The Role of Voluntary Corporate Environmental Management*, in: OECD (1999), Conference on Foreign Direct Investment and the Environment.

Beenhakker, Henri (2001), *The Global Economy and International Financing*.

CBD (Convention on Biological Diversity) (2002), *An Introduction to Funding Guidance of The Convention on Biological Diversity*.

CBD (2003), *Technology Transfer and Cooperation*.

CIPR (Commission on Intellectual Property Rights) (2002), *Integrating Intellectual Property Rights and Development Policy – Report of the Commission on Intellectual Property Rights*.

Dixit, Avinash K. and Robert S. Pindyck (1994), *Investment under Uncertainty.*

Fritz, Wolfgang (1995), *Umweltschutz und Unternehmenserfolg – eine empirische Analyse*, in: DBW 55/1995, p. 347-357.

Gasser, Rupert and Robert Walker (2001), *Partnerships in Practice – Industry, Fresh Water & Sustainable Development*, WBCSD, <www.wbcsd.org/web/publications/partnership.pdf>

GEF (Global Environment Facility) (1998), *Operational Report on GEF Programs*.

GEF (2004), *Engaging the private sector in GEF activities*, <www.gefweb.org>.

Gentry, Bradford (ed) (1998), *Private Capital Flows and the Environment – Lessons from Latin America*.

Gentry, Bradford (1999), *Foreign Direct Investment and the Environment: Boon or Bane?*, in: OECD (ed) (1999), Foreign Direct Investment and the Environment, p. 21-45.

Gentry, Bradford (2000), *Private Capital Flows and Climate Change: Maximizing Private Investment in Developing Countries under the Kyoto Protocol*, <www.yale.edu>.

Gentry, Bradford (2001), *Research Statement*, <www.yale.edu>.

Goldemberg, José (ed) (1998), *Issues & Options – The Clean Development Mechanism*, UNDP, <www.undp.org>.

Gratzfeld, Joachim (ed) (2003), *Extractive Industries in Arid and Semi-Arid Zones – Environmental Planning and Management*.

IEA (International Energy Agency) (2001), *Kyoto Mechanisms, Monitoring and Compliance – From Kyoto to The Hague*, OECD/IEA.

IEA (2003), *Energy to 2050 – Scenarios for a Sustainable Future*, OECD/IEA.

IIED (International Institute for Environment and Development) (2002), *Financing for Sustainable Development*, <www.iied.org/docs/wssd/finance_sd.pdf>.

IMF (International Monetary Fund), UNEP and World Bank (2002), *Financing for Sustainable Development*.

Multilateral Fund for the Implementation of the Montreal Protocol (2003), *Policies, Procedures, Guidelines and Criteria*, <www.unmfs.org/PDF/POLICY40.doc>.

OECD (Organisation for Economic Co-operation and Development) (1994), *Effective Technology Transfer, Co-operation and Capacity Building for Sustainable Development: Common Reference Paper*.

OECD (1998a), *Relationships between the MAI and Selected Multilateral Environmental Agreements (MEAs)*.

OECD (1998b), *The Environmental Effects of International Portfolio Flows*.

OECD (1998c), *Foreign Direct Investment and Economic Development.*

OECD (1999), *Foreign Direct Investment and the Environment*.

OECD (2000), *Donor Support for Institutional Capacity Development in Environment: Lessons Learned*.

OECD (2001a), *Policies to Enhance Sustainable Development*.

OECD (2001b), *Environmental Benefits of Foreign Direct Investment: A Literature Review*.

OECD (2001c), *Environmental Issues in Policy-Based Competition for Investment: A Literature Review*.

OECD (2001d), *OECD Environmental Outlook*.

OECD (2001e), *Sustainable Development – Critical Issues*.

OECD (2002a), *The DAC Guidelines: Integrating the Rio Conventions into Development Co-operation*.

OECD (2002b), *Foreign Direct Investment for Development – Maximising Benefits, Minimising Costs: Overview*.

OECD (2002c), *Creditor Reporting System on Aid Activities: Aid Activities Targeting the Objectives of the Rio Conventions 1998/2000*.

OECD (2003a), *Harnessing Markets for Biodiversity – Towards Conservation and Sustainable Use*.

OECD (2003b), *Perverse Incentives in Biodiversity Loss*.

OECD (2003c), *Environmentally Harmful Subsidies – Policy Issues and Challenges*.

OECD (2003d), *Organic Agriculture – Sustainability, Markets and Policies*.

OECD (2004), *Stakeholder Consultation with Ministers: Written Statement from the Business and Industry Advisory Committee (BIAC)*.

Ott, Hermann E. (2001), *Climate Policy after the Marrakesh Accords: From Legislation to Implementation*, to be published under the title 'Global Climate' in Yearbook of International Environmental Law (12).

Pachauri, Rajendra K. (2001), *Climate Change and Technology Transfer*, <www.yale.edu>.

Pindyck, Robert. S. (2002), *Optimal Timing Problems in Environmental Economics*, in: Journal of Economic Dynamics & Control 26 (2002), p. 1667-1697.

Rubino, Michael C. (2000), *Biodiversity Finance*, in: International Affairs 76, 2, p. 223-240.

Sanwal, Mukul (2001), *Framework for MEA Cooperation*, Paper submitted to the International Eminent Persons Meeting on Inter-linkages – Strategies for Bridging Problems and Solutions to Work Towards Sustainable Development, World Summit for Sustainable Development, <www.unu.edu/inter-linkages/>.

Seth, Camilla and Andrew Kasius (2001), *Investor's views on climate change*, <www.yale.edu>.

UNCCD (United Nations Convention to Combat Desertification) (2002), *Report of the Committee for the Review of the Implementation of the Convention on its First Session*, Rome 2002, <www.unccd.int>.

UNCCD (2003), *Independent Evaluation of the Global Mechanism*.

UNEP (United Nations Environment Programme) (1999), *Synergies*, Newsletter Issue 1, November 1999.

UNEP (2003), *Basic Facts and Data on the Science and Politics of Ozone Protection*.

UNEP and OECD/IEA (2001), *Technology without Borders – Case Studies of Successful Technology Transfer*.

UNEP-WCMC (UNEP World Conservation Monitoring Centre) and CBD (2004), *Protected Areas and Biodiversity*, <www.biodiv.org/doc/publications/pa-brochure-en.pdf>.

UNFCCC (United Nations Framework Convention on Climate Change) (2003a), *Development and Transfer of Technologies.* Report of the UNFCCC Workshop on Enabling Environments for Technology Transfer.

UNFCCC (2003b), *Review of implementation of commitments and of other provisions of the Convention. Financial mechanism*. Report of the Global Environment Facility to the Conference of the Parties.

UNFCCC (2003c), Report of the Workshops on Possible Synergy and Joint Action with the other Multilateral Environmental Conventions and Agreements, and on Enhancing Cooperation with other Conventions.

UNIDO (United Nations Industrial Development Organization) and WBCSD (World Business Council for Sustainable Development) (2002), *Developing Countries and Technology Cooperation – An Industrial Capacity-Building Initiative*.

UNU (United Nations University) (1999), *Inter-Linkages – Synergies and Coordination between Multilateral Environmental Agreements*.

WBCSD (World Business Council for Sustainable Development) et al. (2002), *Investing for Sustainable Development – Getting the Conditions Right*.

Wittich, Stephan (1999), *Report by Austria – On Measures Taken to Support the Implementation of the Convention to Combat Desertification in Affected African Country Parties*, Austrian Federal Ministry for Foreign Affairs and Federal Ministry for the Environment (ed).

World Bank (2003), *Global Development Finance 2003 – Striving for Stability in Development Finance*.

World Bank (2004), *Global Development Finance – Harnessing Cyclical Gains for Development*.

WTO (World Trade Organization) (1998), *Working Group on the Relationship between Trade and Investment – Communication from the IMF*, <www.docsonline.wto.org>.

WWF (World Wide Fund for Nature) (2001), *No investment Agreement within the WTO: Re-directing Investment to Promote Sustainable Development,* < www.panda.org/downloads/policy/investment_qris.pdf>.

Zarsky, L. (1999), *Havens, Halos and Spaghetti: Untangling the Evidence about Foreign Direct Investment and the Environment*, in: OECD (1999), *Foreign Direct Investment and the Environment*.

Zhang, ZhongXiang and Aki Maruyama (2001), *Towards a private-public synergy in financing climate change mitigation projects*.

Internet Sources

Australian Government, Export Finance and Insurance Corporation, <www.efic.gov.au>.

Austroprojekt Ltd., <www.Austroprojekt.com>.

CBD (Convention on Biological Diversity), <www.biodiv.org>.

CERES – Network for Change, <www.ceres.org>.

Citigroup, <www.citigroup.com>.

CFA (Conservation Finance Alliance), <www.conservationfinance.org>.

Conservation Finance Guide, <http://guide.conservationfinance.org>.

Desert Net – German Competence Network for Research to Combat Desertification, <www.desertnet.de>.

EPRI (Electric Power Research Institute), <www.epri.com>.

Equator Principles, <www.equator-principles.com>.

European Commission, <http://europa.eu.int/comm/>.

First Environment Inc., <www.firstenvironment.com>.

GEF (Global Environment Facility), <http://gefweb.org>.

GEIC (Global Environment Information Centre), Interlinkages, <www.geic.or.jp/interlinkages/>.

Global Mechanism of the UNCCD, <www.gm-unccd.org>.

GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit), <www.gtz.de>.

ICC (International Chamber of Commerce) – the World Business Organization, <www.iccwbo.org>.

IETA (International Emissions Trading Association), <www.ieta.org>.

IFC (International Finance Corporation), <www.ifc.org>.

IFOAM (International Federation of Organic Agriculture Movements), <www.ifoam.org>.

IISD (International Institute for Sustainable Development), <www.iisd.org>.

Japan Corporate News Network, <www.japancorp.net>.

JIN (Joint Implementation Network), <www.northsea.nl/jiq/>.

Kyoto Protocol to the United Nations Framework Convention on Climate Change, <http://unfccc.int>.

Montreal Protocol on Substances that Deplete the Ozone Layer, <www.unep.org/ozone/montreal.shtml>.

Multilateral Fund for the Implementation of the Montreal Protocol, <www.unmfs.org>.

RTL (Reduced Tillage Linkages), <www.reducedtillage.ca/>.

Sanoway Corp., <www.sanoway.com>.

Science Daily, <www.sciencedaily.com>.

Shell, <www.shell.com>.

UN (United Nations) (2003), Partnerships for Sustainable Development, <www.un.org/esa/sustdev/partnerships/brochure_E.pdf>.

UN Global Compact, <www.unglobalcompact.org>.

UNCCD (United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa), <www.unccd.int>.

UNEP (United Nations Environment Programme), <www.unep.org>.

UNEP/DTIE (Division of Technology, Industry and Economics), OzonAction Branch, <www.uneptie.org/ozonaction/>.

UNEP/TEAP (Technology and Economic Assessment Panel), <www.teap.org>.

UNFCCC (United Nations Framework Convention on Climate Change), <http://unfccc.int>.

UNFCCC/CDM (Clean Development Mechanism), <http://cdm.unfccc.int>.

UNIDO (United Nations Industrial Development Organization), <www.unido.org/>.

University of Florida, Environmental Horticulture, <http://hort.ifas.ufl.edu>.

UNU (United Nations University), Inter-Linkages Initiative, <www.unu.edu/inter-linkages/>.

US Department of Energy, Office of Science, <http://cdiac2.esd.ornl.gov/>.

WBCSD (World Business Council for Sustainable Development), <www.wbcsd.org>.