15 years of cooperation
15 years of cooperation
bridging two worlds
Foreword

The birth of sba coincided with the motivation to organise a symposium on the environment targeting the industrialists of the Middle East. The patronage of the Jordanian crown prince heartened us. The symposium was followed by another one in Marrakech, this time under the patronage of the crown prince of Morocco. It was the beginning of an adventure that took unexpected turns and an unforeseen dimension. At the time, we were under the impression that we were preaching in the wilderness: in the Arab countries, environment protection was considered as an obstacle to development, legislative and institutional structures were in embryonic stages and awareness to environmental problems and the consequences of pollution barely existed. After the impact of the Earth Summit of Rio de Janeiro in 1992, our action gained its first positive welcome from visionary and proactive industrialists. This pushed us to go forward with our DELTA programme (p. 5) and start an exchange network between Switzerland (and Europe) and the countries of the Maghreb and the Mashreq. Bridging Two Worlds, our mission was starting to take shape...

As for any new enterprise, the beginnings are hard. We were pioneers in the field of sustainable development in the Arab countries; searching for funding to launch our first projects was an arduous task. Our enthusiasm and perseverance caught the eyes of veterans of the Swiss cooperation; we received punctual timely support to stimulate our creativity. Our experience and our contacts increased allowing us to attain notoriety in the circles of environmental management. Since then, sba worked toward integrating the concepts of eco-efficiency and sustainable development at the local, regional and international levels with the close collaboration of industrial and academic circles. We carried out awareness actions, organised specialised trainings and encouraged the integrated management of environmental problems within the enterprise. To this end, we have developed a set of innovative technical tools suitable for the enterprise in partnership with several Swiss and international excellence centres. Bridging Two Worlds, our mission was growing by establishing new links between environment and economics...

A fortuitous meeting with the late Professor Pillet opened the doors to a new world for sba: the world of environmental economic studies for decision makers, in the industrial sector on one hand and in the local and national administrations on the other hand. We have now many strings in our bow, from developing plans of actions, strategies, forecasting to scenarii analysis. The pragmatic and concrete profile of sba complemented the academic dimension of its partners. Bridging Two Worlds, our mission offers to link theory and practice...

In recent years, we have expanded our field of expertise as well as our zone of influence. We have in fact created a new unit dedicated to applied environmental engineering, using the method of the Life Cycle Analysis (LCA). At the geographic level, we are currently exploring new niches in sub-Saharan Africa and the Gulf region, in addition to the Maghreb and the Mashreq, where we carry on several environmental projects.

In this brochure you will find a selection of the most important projects that have marked out the rich road of sba since its creation, 15 years ago. Today, the journey continues and at a time where environment becomes more than ever a necessity, we are all the more determined to continue our path, take on our role and contribute in our own way toward sustainable development.

Karim Zein, Président of sba
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DELTA Programme

DELTA is the acronym of Developing Environmental Leadership Towards Action. The objective of the programme is to create and reinforce «enterprise and environment» networks in the Mashreq and the Maghreb. Through the DELTA networks, entrepreneurs can access the information they need from experts and share their experiences. They also learn to better address environment related risks and opportunities by using handy eco-management tools. These tools are based on eco-efficiency principles and they are really interesting because they open the way to substantial improvements on both the environmental and economic levels.

The DELTA programme extended over a decade (1995-2006) and was jointly financed by the European Commission, the German Technical Cooperation (GTZ), the Swiss Agency for Development and Cooperation (SDC) and the United Nations (UNDP).

The beginnings of the DELTA programme

Mediterranean countries face environmental challenges of major importance. In the beginnings of the 1990s, developments in the international legal framework, especially Agenda 21*, have led these countries to reconsider their cooperation system. The Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean was adopted during a conference held in Barcelona on the 9th and 10th of June 1995. The conference launched a euro-mediterranean thinking process on an integrated sustainable management of resources, calling on industrial and trade sectors in particular to create national and regional partnerships to concretely contribute to the reinforcement of environmental management within the enterprise.

Since then, protecting the environment and managing natural resources became more and more important in the countries of the MENA region (Middle East & North Africa). On one hand, governments have introduced new regulations and taxes exerting pressures on economic players and on the other, civil society in these countries became more aware of environmental stakes and frequently pointed out the responsibility of enterprises that are at the same time a major player in the development and growth of any country.

*Agenda 21 is the action programme produced during the «Earth Summit», the Conference of the United Nations on Environment and Development (UNCED), held in Rio de Janeiro in 1992. More than 150 leaders have signed an action programme for the 21st century. A series of concrete recommendations were set, stemming from the concept of sustainable development and based on three pillars: economic action, social development and the judicious management of natural resources.
In this context, sba launched and implemented the DELTA programme since 1995, seeking to endow enterprises, willing to improve their environmental performances, with the necessary means and assist them in the process. The DELTA programme relied on networking to connect partners in 11 countries from the Middle East and North Africa (Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Mauritania, Palestine, Syria, Tunisia and Turkey); this programme promoted and reinforced exchanges and skills in eco-management on different scales: national, regional and, international. The programme was developed following 4 phases that will allow enterprises to achieve the required upgrade with respect to the environment.

**Phase I (1995 -1998) :**
**Launching and setting up networks**

More than 100 roundtables and 7 workshops were organised in several countries of the MENA region in collaboration with the concerned economic and political players and decision makers. Two regional symposium were held in Amman (September 1996) and Marrakech (February 1998) on eco-efficiency to encourage managers to form networks of «enterprises for the environment» in each of the 11 countries of the south Mediterranean, the DELTA Networks.

These networks succeeded in attracting the Small and Medium Enterprises (SME) willing to become proactive in an environmental perspective, guiding and encouraging them to take concrete measures concerning their production and management methods by engaging their staff in the process. These networks are not confined to SME, but they also reinforce professional association, employers’ federations, chambers of industry and commerce as well as representatives of Ministries and other regional and local administrations.

The DELTA networks have thus gained a common knowledge-base in eco-management and can therefore act as catalysts to guide other enterprises and work on collaborations with new partners.

**The DELTA tools**

In order to raise the awareness of entrepreneurs to environmental challenges and to give them means to assess their economic and environmental impact, sba created a series of eco-management tools. These tools were specifically developed for enterprises so that they can identify their deficiencies with respect to eco-efficiency and apply the adapted solutions. Several case studies were documented and gathered in a database available on the website of sba (www.sba-int.ch).
**Phase II (1999-2000): Dissemination and learning**

This second phase mainly consisted of spreading the principles of eco-efficiency and eco-management in order to train industrialists. Over 20 technical seminars were organised to present these principles and disseminate the Good Housekeeping guide (see box).

Many enterprises have adopted eco-efficient measures and realised that they could reduce their production costs while preserving resources. At the same time, they minimise their environmental impact and promote their image among their customers, suppliers and within the community and local authorities.

**Phase III (2001-2003): Consolidation and replication**

The activities conducted during this third phase were concentrated on training industrialists on new eco-management tools (such as eco-maps, ESDG and EPI see boxes on p. 8) and their implementation within the enterprise. More than 450 enterprises have implemented these tools and introduced therefore corrective measures that had a positive effect on the quality of the environment engendering economic benefits. Moreover, 8 technical seminars were organised for the industrialists. Phase III was also intended for a larger public in particular university students, for whom special trainings in eco-management were set up (see box above).

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**The eco-management training module**

This formula involved the participation of two universities, one in Switzerland, the Swiss Institute of Technology (EPFL, Lausanne) and the other in a member country of the DELTA networks. The 10 days training programme consisted of several courses on Environmental Management Systems (EMS), Life Cycle Analysis (LCA) and DELTA eco-management tools. Three training modules were organised, one in Lebanon in April 2002 and two in Algeria in July 2002 and July 2003. The goal was to create a permanent link with the two universities and to root eco-management in their curriculum.

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**Good Housekeeping**

This is a practical tool for enterprises to determine simple environmental measures, reduce costs, improve productivity and minimise the impact on the environment. The simple methodology proposed endows the executives and technicians of SME with the means to quickly set up eco-efficient measures for the daily management for the environment.

In most of the cases, the corrective measures are equivalent to a 2'000 USD investment with a quasi immediate payback (less than a year). The concrete measures consist of voluntary profitable actions with the objective of:

- Rationalising the use of raw materials, water and energy
- Reducing the quantity and/or the toxicity of waste, wastewater and emissions linked to production
- Recycling and profitably exploiting packaging and basic components
- Improving working conditions and security within the enterprise
Improve communication

In order to inform all the members in the DELTA networks of the programme activities, a yearly newsletter, the DELTA News, was published and distributed in all the concerned countries.

Additionally, to report in a lively manner the activities achieved until now in the DELTA project a documentary was filmed in Switzerland and Jordan. This 12 minutes film showed the central activity of the programme, that is the implementation of the eco-management tools in the enterprise (the film can be ordered at sba).

Ecomaps

Ecomaps are graphical representations of the environmental context of an enterprise and problems arising. First of all, the enterprise has to do a mini audit, engaging its collaborators to qualitatively assess its environmental approach. Following these observations, several thematic maps will be drawn. In reality, the objective is to locate and draw, over the floor plan of the enterprise, the inappropriate practices with respect to the environment. This simple yet practical graphic tool particularly suits the numerous small structures of the MENA region, which work through mutual adjustment and progress in a context of oral culture.

Environmental Self-Diagnosis Guide - (ESDG)

ESDG will help the enterprises, whatever their size is, to assess their managerial situation. This tool is an active preparation to the environmental management certification (i.e. compliance with international standards ISO 14000 and EMAS). The guide was structured in a systematic way with interrelated analysis sheets in order to facilitate the analysis, the synthesis and the hierarchisation of the environmental problems. The self-diagnosis approach is concluded by the elaboration of an action plan, an operational tool developed by the enterprise to sustainably and preventively deal with the determined priorities.

Environmental Performance Indicators (EPI)

The Environmental Performance Indicators is the last tool of the DELTA programme. It is a guide adapted to communication and monitoring. Using a systematic and participative methodology, this tool allows enterprises to regularly organise data collection and monitoring and to measure the distance to their objectives in order to take the corrective actions. The Environmental Performance Indicators gives a general and detailed outlook of the situation of the enterprise based on chosen and analysed indicators selected for their relevance. This tool can be adapted to new environmental concerns in the enterprise. It connects quantities and prices to environmental aspects. It is the best eco-effectiveness tool.
Phase IV (2004-2006): Independence and durability

For the Programme to have a sustainable impact on the national and regional levels, it was necessary that actions taken during the previous phases be durable. The DELTA networks needed to consolidated their structures and acquired the necessary knowledge to manage the Programme in the long run, in an independent way.

First, to reinforce the capacity of the networks, training of trainers programmes were set up. The persons trained acquired the necessary bases to independently manage new projects.

Phase IV has also allowed the development of institutions in the national DELTA networks, especially by setting a new governance mechanism: the DELTA Association (see box) founded to achieve a better synergy in the management of the programme, it is headed by a strategy board and an executive director. sba’s role was thus reduced to timely technical assistance. Thus the governance of the programme was given to the beneficiaries, the DELTA networks.

Outlook

Enterprises of the Maghreb and the Mashreq are more and more led to upgrade from an environmental point of view. This is necessary to respond to national and international pressures (the international market recognises better enterprises concerned by the environment), especially in the perspective of open borders with the establishment of the Euro Mediterranean Free Trade Zone, expected in 2010. By continuing the promotion of eco-management in the enterprise and setting up wider networks, the DELTA Programme has more than ever its place in these countries to help them face the new challenges of the economy and the environment.

The DELTA Association

Founded in Lausanne, Switzerland, on the 3rd of December 2004 by the representatives of 8 different organisations and authorities of the Mashreq and the Maghreb, the DELTA Association was created to take on the governance of the DELTA programme. As of 2007, the Association is in charge of all the DELTA activities. It is a non profit organisation, neutral on both political and religious levels.

Currently, the DELTA association has networks established in the 8 founding countries (Algeria, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia) and seeks to expand towards all the countries of the MENA region. For further information on the DELTA Association and its activities, visit the website: www.deltaassociation.org.
In February 2004, *sba* launches the monthly DELTA Review. It is a compilation of articles and news, in addition to a thematic report. The subjects usually treated relate to environment and economy and they are classified in several sections (economy, industry, cleaner production, new technologies, energy, environment and events).

The publication of the DELTA Review extended over 5 years (52 issues), until August 2008, when the design and the content were revamped. The monthly newsletter was renamed *sba* review.

To download or view previous issues of the DELTA Review or *sba* review, visit our website: www.sba-int.ch > publications.

**Achievements: 13 years in figures**

<table>
<thead>
<tr>
<th>Global budget of the programme</th>
<th>5’500’000 CHF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained participants</td>
<td>2’500</td>
</tr>
<tr>
<td>Persons educated on the subject</td>
<td>5’000</td>
</tr>
<tr>
<td>Implementations in the enterprises</td>
<td>750</td>
</tr>
<tr>
<td>Published case studies</td>
<td>200</td>
</tr>
<tr>
<td>Annual savings made by the enterprises implementing the programme (estimation), since 2001</td>
<td>1’875’000 CHF/year</td>
</tr>
</tbody>
</table>
**MESO Programme**

**Environmental economics**

The degradation of the environment has several consequences: depleting the natural capital, affecting health, creating imbalances in ecosystems, deteriorating landscapes, etc. These consequences have direct and indirect economic repercussions. The costs, if not taken into consideration, could also be obstacles to the sound development of an enterprise, a city or a country.

Environmental economic studies facilitate the measurement of the degradations resulting from the activities of the entity under study (enterprise, industrial sector, city, country), and then recommendations can be made according to the results. The commissioners of the study will decide the allocation of priorities and take the necessary measures. Thus an environmental economic analysis, based on several key indicators, will determine the situation of the environment on a specific date; the analysis can then be regularly repeated for benchmarking purposes. It is then possible for the beneficiary of the analysis to monitor the progress of their environmental performance and compare the results in time in order to work toward an optimal management on all levels. By improving the eco-efficiency of the beneficiaries, the environmental economic studies will help reduce the environmental impact and its consequences on the welfare of the population.

**The MESO dimension**

A MESO study is the environmental economic assessment of a given sector or an urban community. Its objective is to link a micro evaluation (production unit), and a macro evaluation (country) to an intermediate level (sector), the meso-economic level.
**Methodology**

An entity under study in an environmental economic analysis is considered as a «metabolism» in the sense that, through its various activities, it ingests and transforms resources, produces goods, emits waste and exerts pressures on ecosystems.

Taking into consideration the complexity of this metabolism and the numerous elements with which it interacts, the consequences of the activities of the entity are estimated in terms of costs of damages and inefficiencies (CDI) and costs of remediation (CR). When determined in monetary terms, these impacts become then directly comparable to other economic referents, such as the Value Added (VA).

When remediation measures are implemented, CDI can be considered as potential benefits (i.e. avoided losses). We can thus link CDI to CR and build a CDI/CR ratio used as a benefit to costs (B/C) ratio. An economically effective remediation action means that total benefits should prevail over costs; the B/C ratio is thus greater than 1. The ratio measures the profitability of the remediation action.

**Costs of Damages (CD)**

Costs of damages to the environment are defined as a welfare loss, from an economic point of view, of a community or a country. Such a welfare loss will have consequences on health, loss of profits or loss of environmental services.

**Costs of Inefficiencies (CI)**

Costs of inefficiencies in using resources are related to economic losses. These losses can vary from excessive water leakages in distribution networks to the lack of savings in energy use or the unavoidable losses of materials during a production process.

**Costs of Remediation (CR)**

Costs of Remediation represent the necessary spending to protect the environment by preventing or remediating the deterioration. These costs will help restore an acceptable environmental quality for the community. The necessary measures are highly variable since they depend on the needs of the entity under study: they can range from prevention (organising awareness sessions), to improving infrastructures, and to optimal use of resources, etc.
Evolution of the MESO programme

Ecosys and sba initiated the MESO programme in 2001 with the support of the SDC. At first the programme was focused on the creation of new tools to assist in decision making in environment protection and to conduct environmental economic analysis at the sectorial level or at the urban level in the Maghreb and Mashreq countries.

The publications of the studies results, the investments and actions they produced as well as the discussions they brought about have triggered the transfer of the MESO methodology to local partners. The partners willing to grasp the ins and outs of the process have pushed Ecosys and sba to set up the MESO training, first on the sectorial and urban levels. As of 2006, the training tackled also the universities. Since then, the MESO analyses can serve as practical case studies done in conjunction with training.

The MESO Guide

In the scope of this know-how transfer, a guide on MESO environmental economic analysis was published in 2008. This valuable companion to the trainings introduces all the theoretical concepts underpinning the methodology in the first part and describes, in the second, the detailed process to carry out an evaluation in the best manner. The guide can be downloaded from the website: www.meso-platform.org.

Communication and events

The MESO platform

The MESO platform (www.meso-platform.org) pursues several objectives. First of all, it provides online specialised documentation; it is also the showcase of the MESO programme activities and it establishes the links between all stakeholders. Moreover, a database of selected experts in environmental economy as well as the results of MESO analyses are available to facilitate communication and allow experience sharing. Lastly, the MESO platform is also a support for the e-learning modules contained in some of the trainings.

E-conferences

The MESO e-conferences organised on the platform are a handy and efficient way to meet and communicate with other concerned players. Until now, three e-conferences were carried out with each having a specific theme:

- Elements of Environmental Economy (2006)
- Environment and Poverty (2007)
- Water and Environmental Economy (2008)

MESO Symposia

Until now, Ecosys and sba have organised three international MESO symposiums. The first two were held in Damascus, Syria (5-7 June 2005 and 17-19 June 2008); the last one was held in Marrakech, Morocco (22-24 January 2009). These events allowed the gathering of all parties concerned with the MESO programme to share their experiences and further reflections undertaken. These Symposia constituted important dissemination platforms for the MESO programme by gathering experts, academic researchers, industrialists and public service officers.
Urban and sectorial analyses in the MENA region: the missing link

The national and international cooperation authorities have identified persistent environmental problems in the MENA region: they do not differ from one country to another except by size and intensity. These problems are:

- Scarcity and quality of water
- Soil degradation and desertification
- Urban and industrial pollution
- Weakness of legal and institutional frameworks

These problems have serious impacts on public health and are heavy on the economy of the whole region. Therefore, means were given to these countries to develop the eco-efficiency of enterprises and improve their knowledge of the environment degradation costs. Before launching the MESO programme, the available analyses (costs of degradation of the environment as related to the GDP) were carried out only at the national level or at the level of the enterprise. Since these analyses were not related, there were gaps between the self-evaluation carried out by an enterprise on the micro-economic level and the benefits to costs ratio calculated at the national or macro-economic level. The actors were not the same, thus the economic results were not comparable because of the differences of the issues at stake and the methods used.

It is in this context that meso-economic studies prove to be useful since they provide a dashboard for environmental costs and benefits in an industrial sector or an urban community with results coherent with analyses conducted at the national, regional and international level.

Good to know

The results of a MESO diagnosis (CDI and CR) are distributed according to 6 domains:

1. Water 4. Soils and forests
2. Air 5. Energies and materials
3. Wastes 6. EGlobal environment

(This last domain is treated separately because of the complexity of the evaluation of damages)

The degradations in every domain are then quantified in a specific way through 3 economic categories:

A. Health and quality of life
   (effects on human health and the living environment)
B. Natural capital
   (preservation of the natural heritage and environmental goods and services)
C. Inefficiencies in using resources
   (economic losses and therefore competitiveness losses)

Then benefits to costs ratios are calculated for each domain, facilitating the result interpretation and the identification of priorities.
The cement industry

The production of cement is an industrial activity that inevitably exerts pressures on the natural and social environment. To this date, five MESO studies were conducted on the cement sector, in Algeria, Tunisia, Syria, Libya and Morocco.

The results showed that the necessary costs to avoid pollution and limit the impacts of activities related to the production of cement nearly represent half of the degradation costs initially generated. The potential savings reside mainly in a better management of raw materials (limestone, clay, etc.) and energy. Moreover, it is essential for the companies in this sector to have efficient installations, especially to filter emissions harmful to the environment and the health of the inhabitants. The study conducted in Algeria has demonstrated that the supplementary costs of the shutdown of an electrofilter for 6 months has increased costs linked to air pollution by 80% and a loss of profits on fuel and raw materials of 10.5%.

In Morocco, a comparative study was conducted to evaluate the situation of the cement sector before and during the environmental upgrade (benchmarking year 1997, 2003 and 2006). The results speak for themselves (see figure below).

The production of electricity

Two MESO studies were carried out in the sector of electricity production in Algeria and Libya.

In both countries, electricity consumption witnesses a spectacular increase which means unavoidable investments. MESO analyses have guided these investments; thus the actions taken (abandoning obsolete production sites, constructing new combined cycle power plants, using gas rather than fuel) have served well the economic strategy of the sector, while being compatible with environmental objectives.

The analyses were also prospective. Thus, the evolution of the results obtained in the studies (2004 and 2005) were estimated for the short term (2009 and 2012) according to two options—the first with an environmental upgrade and the second without—forecasting a production increase of 60%.

With respect to CO₂, it was estimated, for 2005, that if 10% emissions were avoided and sold on the international carbon market, then the generated profits would equal 2% of the VA.
Tourism

The MESO methodology, usually used to evaluate the degradation of the environment at the sectorial level (cement, electricity) or the urban level (a city) was applied for the first time in 2008 on a service sector: tourism.

The study carried out in Morocco has shown that the costs of damages and inefficiencies (CDI) in the tourism sector are relatively low compared to other industrial sectors. This shows that tourism is a service activity and the results have proved that the preservation of the soil, the coast line and the landscapes which are an essential input to touristic activity is a primary priority. Fighting air pollution, managing wisely water resources and using efficiently energies and materials are also profitable actions and therefore of prime importance.
**MESO-cities**

The environmental economic profile of an urban community is grasped through the metabolism of all of its economic activities (households, industries, tourism, agriculture, etc.). We note in each analysis that the types of consequences resulting from these activities are similar from one city to another (water and air pollution, untreated waste accumulation, landscape degradation, waste of resources, etc.). However, the source and the importance of the degradations are variable because they are closely related of the characteristics of each region.

Since 2003, several meso-economic analyses were carried out on different urban centres in the MENA countries. The difference is less striking here than in the industrial sectors, however, the CDI/CR ratio is large enough to convince municipal authorities of the importance of implementing the recommended measures.

The MESO study concerning the city of Aqaba in Jordan is representative of the improvement potential of an urban centre. To evaluate the future of Aqaba, 2 scenarii were considered: the first one « Business As Usual » (BAU), is based on the normal development of the region whereas the « Master Plan » (MP) scenario takes into account the recommended corrective measures to improve the environmental situation. Following the BAU scenario, CDI should reach 22% of the VA of Aqaba in 2010. However, if the MP scenario was carried out, CDI would constitute a total of 14.5% of the VA, which represents a profit of 67 millions USD! The quality of life will thus be definitely improved…

### Morocco : Greater Agadir, 2003

<table>
<thead>
<tr>
<th>Population</th>
<th>600’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Added (VA), in million USD</td>
<td>860</td>
</tr>
<tr>
<td>CDI as % of VA</td>
<td>16.2%</td>
</tr>
<tr>
<td>Total CR as % of VA</td>
<td>12.5%</td>
</tr>
<tr>
<td>Contribution to the national GDP</td>
<td>2.6%</td>
</tr>
<tr>
<td>Contribution to national damages</td>
<td>7%</td>
</tr>
<tr>
<td>Fresh water consumption in litres</td>
<td>97.5 L/day/inhab.</td>
</tr>
<tr>
<td>of which households</td>
<td>62.5%</td>
</tr>
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### Jordan : Greater Irbid, 2004

<table>
<thead>
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<th>Population</th>
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</thead>
<tbody>
<tr>
<td>Value Added (VA), in million USD</td>
<td>627</td>
</tr>
<tr>
<td>CDI as % of VA</td>
<td>12%</td>
</tr>
<tr>
<td>Total CR as % of VA</td>
<td>9%</td>
</tr>
<tr>
<td>Contribution to the national GDP</td>
<td>6.6%</td>
</tr>
<tr>
<td>Contribution to national damages</td>
<td>14%</td>
</tr>
<tr>
<td>Fresh water consumption in litres</td>
<td>88 L/day/inhab.</td>
</tr>
<tr>
<td>of which agriculture</td>
<td>70%</td>
</tr>
</tbody>
</table>
### Jordan: Greater Aqaba, 2005

| Population | 87’000 |
| Value Added (VA), in million USD | 565 |
| CDI as a % of the VA | 16.25% |
| Contribution to the national GDP | 5.7% |
| Contribution to national damages | 5.8% |
| Fresh water consumption in litres | 350 L/day/inhab. |
| of which industries | 46.49% |

### Algeria: Greater Annaba, 2005

| Population | 520’000 |
| Value Added (VA), in million USD | 1'266 |
| CDI as a % of the VA | 31.4% |
| Total CR as a % of the VA | 23.2% |
| Contribution to the national GDP | 1.2% |
| Contribution to national damages | 4.6% |

### Morocco: Greater El Jadida, 2006

| Population | 200’000 |
| Value Added (VA), in million USD | 529 |
| CDI as a % of the VA | 11.6% |
| Total CR as a % of the VA | 8.47% |
| Contribution to the national GDP | 0.8% |
| Contribution to national damages | 2.5% |
**MESO Trainings**

The trainings aim at transmitting the concepts and analytical principles of environmental economy as well as the implementation of the MESO methodology. The objective is for the beneficiaries to master the tools and acquire enough autonomy to conduct studies by themselves in their region.

**Trainings of trainers**

By setting up training for trainers, new human resources can therefore transmit the acquired knowledge in their country. For this, Ecosys and *sba* published a « Didactic guide for environmental economy training in the Maghreb and the Mashreq » in order to ensure the transfer of know-how to the future teachers. This type of training partly relies on case studies that will lead to new MESO analyses or to the upgrade of older analyses.

**University partners**

The universities of El Jadida in Morocco (2007), and Annaba in Algeria (2007) and Princess Sumaya University of Technology in Jordan (2008) were selected to integrate environmental economy in their curriculum (post-graduate education and training of trainers).

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**The MESO-Teams**

The beneficiaries of the MESO trainings in environmental economy gathered at the national level and constituted MESO-Teams. In universities, the training for trainers is aimed at the professors of a specific institution, whereas MESO-Teams, formed of senior civil service officers, local experts and university professors have a larger audience. These teams rely on carrying out specific MESO analyses and aim at disseminating analysis skills within the public administration and civil society. Two MESO-Teams were formed one in Syria and the second in Morocco.

In 2008, the Moroccan MESO-Team founded the Moroccan Association for Environmental Economy (AMEconEnv). The association gathers MESO specialists and Moroccan experts from several public sectors (Universities, Ministries). It aims at perpetuating and expanding the use of environmental economy in Morocco. Ecosys and *sba* are, through their presidents, honorary members of the AMEconEnv.
Poverty and environment

After having implemented the MESO programme aimed at promoting environmental economics at the scale of an industrial sector or an urban community, sba and Ecosys are collaborating once again in the framework of an environmental economic evaluation at the MACRO level through the Poverty-Environment Initiative (see box). Indeed, an analysis at the national scale enables the elaboration of environmental policies and has an important contribution to the decision-making process. The increasing interest in this type of analysis is based on the fact that environmental problems have to be considered as an integral part of the socio-economic transition that developing countries are undertaking while trying simultaneously to fight poverty and protect the environment.

Links between poverty and the quality of the environment are progressive, numerous, complex and contingent. However, two major links stand out: on one hand, the poorest people have no other choice but to exhaust natural resources on which their survival depends. On the other hand, they often live in a degraded environment devoid of natural resources; richer countries have managed to distance themselves from these difficult environmental conditions and have the means to ensure a priority access to these resources. This double interdependence evokes two potential problems: the first opposes ‘poverty’ and ‘environment’ whereas the second opposes ‘equity’ and ‘environment’.

A first study was carried out in Mali in 2008. Thanks to a close collaboration between international experts, Malian institutions and national consultants, the results of the pilot project were really promising. Among the factors that contributed to the successful results was the excellent work of the local collaborators. The success of this first study encouraged sba, Ecosys and their partners in the UNDP-UNEP to pursue the project by conducting new analyses in sub-Saharan Africa.

The PEI

The Poverty - Environment Initiative (PEI) is a joint project launched in 2005 by the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) during the World Summit on Sustainable Development. The joint project aims at reinforcing the contribution of sustainable environment and natural resources management to poverty reduction, sustainable economic growth and the achievement of the Millennium Development Goals (MDG). It is also part of the Poverty Reduction Strategy Papers (PRSPs) and the global development policies of the beneficiaries.

The beneficiaries in Africa are Burkina Faso, Kenya, Malawi, Mali, Mauritania, Mozambique, Uganda, Rwanda and Tanzania.
Case study: Mali

Mali is endowed with tremendous natural richness, an important fauna and flora diversity and unique ecosystems. However, the country faces a growing number of environmental issues as a result of the growing environmental degradation. As many African countries, these issues are closely connected to the population growth and the decrease of food resources, linking the objectives of sustainable environmental management to those of poverty reduction.

Achieved results

The study conducted in Mali in 2008 helped to evaluate, in monetary terms, the environmental damages to the population and the economy. It showed that an annual loss in revenues and welfare of nearly 20% of the national GDP (around USD 1.3 billion) is due to environmental damages and the inefficient use of natural resources and energies. These damages will inexorably increase unless action is taken. The costs of the measures needed to avoid these losses were estimated to be around 10% of the GDP only: the remediation effort is thus relatively small in comparison with the extent of the environmental damage suffered by Mali.

The ratios in the figure represent the costs of damages and inefficiencies (CDI) with respect to the investments needed to mitigate them. These ratios show the profitability of the remediation. For example, in the domain of “Energies and materials”, every dollar invested will three dollars of damages! Thanks to these measures, Mali will be able to limit the substantial losses affecting its economy and simultaneously improve the population quality of life, especially for the poorest.

The comprehensive fact sheets

To underline the most important results and the key information of this study, comprehensive fact sheets were elaborated. Targeted at the Malian decision makers, these fact sheets clearly designate the sectors of priority where an action involving setting policies is eventually profitable and rather crucial for the future of the country. These fact sheets can be downloaded from our [website](www.sba-int.ch/projets/econenv-Mali).
Cleaner Production

**CP Project in Jordan**

The Cleaner Production (CP) Project aims at contributing to the development of sustainable industrial production in Jordan. This process enables the long term increase in competitiveness of enterprises by reducing environmental impact and applying economically beneficial corrective measures. This project is implemented in the Environmental Research Centre (ERC) of the Royal Scientific Society, RSS. The goal is to increase the skills of the ERC and other stakeholders in the Cleaner Production (CP) field in order to deliver quality services on sustainable and continuous basis to enterprises with respect to cleaner production and cleaner technologies.

It is expected that the CP Project launched in 2004 in Jordan, will be achieved in March 2010. It is co-financed by the RSS and the Swiss State Secretariat for Economic Affairs (SECO). The technical support of the project is ensured by the Swiss Reference Centre (SRC) composed of Carbotech, sba, and the University of Northwestern Switzerland (FHNW).

**The launching**

In 2000, in the context of finalising the free trade agreement between Jordan and European Free Trade Association (EFTA), Switzerland committed to cooperate with the RSS in the field of cleaner production. In October 2001, ERC submitted a proposal to set up a cleaner production programme for Jordanian industries. After an identification mission of SECO in February 2003, an action plan was established in January 2004.
Phase I: promotion, training and action

Above all, it was necessary to set forth a CP unit composed of ERC experts, to integrate the CP philosophy and to bring it to collaborate with other RSS institutions. Then the CP applications had to be promoted and their limits in Jordan and the region had to be defined. For this, experts of the CP unit have been trained by SRC experts. Selected industries (painting, food processing, metallurgy, fertilisers, and dairy products) were subjected to awareness programmes and audits that were carried out in parallel. Two regional workshops have been organised, allowing knowledge sharing and setting up a network of experts in CP. Not less than 31 audits have been successfully completed in landmark enterprises of Jordan.

Two major accomplishments of this first phase were the development of a Master programme in Environmental Management and Technology at Princess Sumaya University of Technology (PSUT), as well as the preparation of a framework to institute in Jordan an Award for CP Excellence. As a result of these positive outcomes, the project that was supposed to last originally 3 years was prolonged by 2 years.

Phase II: new sectors, new tools

The second phase consisted in the application of CP principles in new sectors such as hotel management and catering that are becoming very important sectors in Jordan. In fact, in 2006, tourism share of the GDP ranged between 10 and 12%, while being responsible of additional pressure on the already very limited water resources and the frail ecosystems in the country. A series of audits was carried out in hotels of different categories with the financial participation of the UNESCO and IRADA, a Jordanian programme to improve production. In parallel, new CP tools (see boxes) have been introduced to ERC experts: Risk Analysis, Life Cycle Analysis (LCA), Clean Development Mechanism (CDM) and environmental audit.

Risk Analysis

Risk analysis aims at determining the quantitative or qualitative value of the risk linked to a concrete situation or a known threat, in order to prevent or better manage the consequences.

Life Cycle Analysis (LCA)

LCA allows to quantify all environmental impacts of a product or service all over its life cycle (valorisation, incineration, dumping) including transportation.
**The CP Excellence Model**

Derived from the European Foundation for Quality Management (EFQM) model, it is destined to facilitate the systematic implementation of Cleaner Production. It was elaborated by sba in collaboration with the University of Northwestern Switzerland and RSS in the framework of the CP Project to serve as a basis to launch a Jordanian Award for CP Excellence.

**FACILITATORS**

- Policy
- Strategy
- Diagnosis
- Implementation

**RESULTS**

- Economic Results
- Environmental Results
- Social Results
- Monitoring
- Strategy
- Diagnosis
- Implementation

The CP Excellence Model has been conceived in order to introduce or to improve a cleaner production system applicable to industries of all sectors (food, chemistry, textile, metallurgy, etc.) and all sizes (big, medium or small). The concept of the model relies on the following principle: “Excellent and sustainable results – i.e. respecting the economic, environmental and social dimensions – are achieved in a systematic way thanks to the establishment of a policy and a strategy, the application of corrective measures and the monitoring of obtained results.

**Assessment methodology**

The implementation of the Model is structured according to 5 criteria known as Facilitators enclosing all the activities of an enterprise and 3 others concerning the Results. The Facilitator criteria determine the Results and can be improved by their evaluation (according to the continuous improvement principle). Each of the 8 criteria is divided in sub-criteria that constitute the essential conditions to be fulfilled. As the Model constitutes a dynamic management system, all the criteria are interdependent.

The evaluation includes the attribution of a score (quantitative assessment) that can be used as a reference point for benchmarking. Thus, this evaluation methodology foresees that enterprises plan and develop integrated approaches in order to reach excellent results; they implement them in a systematic way and improve them by regularly assessing them. Therefore “Approach”, “Deployment” and “Improvement” constitute the 3 dimensions to assess the Facilitator criteria. “Excellence” is the dimension to assess the Results criteria. By granting a grade (from 0 to 100%) to each sub-criteria regarding the respective dimensions, all strengths, aspects to be improved and aspects to be examined will be detected. The grade of each criteria is determined by the average of its sub-criteria grades (we assume that sub-criteria have the same “weight” within their criteria). Finally, the global score (from 1 to 1000 points) is calculated by multiplying every percentage by the “weight” given to each criterion. These weights have been established on the basis of the CP philosophy, the experience of other similar models and the opinion of experts who developed and tested this CP Excellence Model.
Good Hotel Management

Presentation

Tourism industry is ever-increasing. Tourism represents 35% of world export services and over 70% in some developing countries. However, the increase is often accompanied with non-sustainable consumption modes, endangering ecosystems and natural resources. Thus, for hotels that are in the heart of the tourism industry, there is a need to become more respectful towards the environment.

Edited in June 2008 by *sba*, the Best Environmental Practices for the Hotel Industry (BEP) is a guide to answer this need, it is intended for all types of hotels wanting to better manage their environmental impacts. The ambition of this guide is to set forth, in a sustainable and systematic way, environmental management tools in the hotel industry. The methodology of the BEP is based on four tools: the check-lists, an environmental self-assessment, economic calculations and an action plan. The BEP is translated and disseminated in English and in French.

Checklist

It is a non-exhaustive list suggesting examples of actions to implement in order to respond to the environmental problems of an enterprise according to targeted fields (water, energy, waste, etc.). It serves as a memo.

Characteristics

Without reconsidering the client’s comfort, numerous efforts can be carried out behind the scenes by the hotel management through technological changes and through implementing the best available practices implying most of the time a modification of staff behaviour, or even the clients. The guide can also be used by managers and hotel executives, as well as service executives (technical, procurement) and their teams, thus allowing better integration of environmental management. The tools proposed by the guide are easy to implement and allow to:

• Rationalise the usage of raw material among which water and energy
• Reduce the quantity of waste and improve waste management
• Adopt a more ecological procurement policy and improve logistics
• Improve the quality of the internal environment of the hotel,
• Raise the awareness of the staff to the importance of the environmental challenges
Perspectives

The efforts carried out in the environmental field allow the hotel to consider an ecologic labellisation. The best known labels for touristic accommodations are the European Eco-Label and The Green Key. Obtaining these labels can lead to investments needed to modernise the equipments of the hotel. However, the savings resulting are worth the try, not to mention that the certification represents a non-negligible competitive advantage to exploit as a marketing tool to improve the image of the hotel among stakeholders and clients.

Moreover, the hotel can reuse the BEP annually to conduct a yearly comparison of performances (benchmarking) and undertake corrective measures whenever needed. After a first approach to the good environmental management, the hotel can go even further in the adoption of eco-efficiency principles by providing additional and personalised services to its clients as it controls the environmental impacts and costs.

Example of the BEP Implementation
Hotel Shweiki, 2 stars, Aqaba, Jordan, 2008

| Water saved | 2'500 m³ / 18'400 US$ |
| Energy saved | 4'600 KWh / 4'200 US$ |
| Total investments | 16'700 US$ |
| Total savings | 22'600 US$ |
Trainings

DAS ESEC

There is a considerable progress in environment related professions throughout Europe. The three big axes involved are: pollution management, cleaner products and technologies, as well as resource management. This situation paves the way to new perspectives for educational programmes in this field.

In this context, the Swiss Federal Institute of Technology (EPFL) and sba have set up in 2008, a Diploma of Advanced Studies (DAS) entitled ‘Environmental Strategy and Economic Challenges’ (ESEC). It is a programme aimed at promoting the concept of (win-win) situations in business management while responding to the current market requirements.

A dynamic and innovative programme

The DAS ESEC is a continuous education programme organised by professionals for professionals. The multidisciplinary and complementary components of the programme tackle, in addition to the bases of environmental management and sustainable development, the concepts to satisfy and improve the competitive advantage of an enterprise. In a proactive perspective, the programme integrates cleaner production, environmental economy and industrial ecology.

The DAS ESES is targeting experienced professionals at the strategic and decision making levels. It offers a global and accurate vision of the challenges of environmental management and economy through the provision of handy, technical and decision-making tools.

Methodology

The programme is based on teaching methods adapted to the requirements for adult training: a participatory education promoting the knowledge and the know-how of participants and enhancing exchanges among professionals. The variety of courses and themes allows participants to use their knowledge in a concrete manner and in several situations. The objective of this method is to induce learning situations and conditions allowing the practice of a constructive way of thinking. Thus, the training combines lectures, group works and field applications.

Programme

Participants must attend all EPFL-sba training modules over a period of 44 weeks. The training starts by an e-learning programme of 8 weeks after which participants must implement the eco-management tools learned in order to submit a case study. This online training is followed by a classroom based course for a period of 24 weeks.

Finally, new tools and instruments acquired during the training will allow participants to carry out a project over a period of 12 weeks in an enterprise or administration. The goal is to propose to a host structure a new vision or relevant solutions in relation with economic and environmental challenges.
The Waste Management Training from A to Z

Countries in the Maghreb and sub-Saharan Africa witness an unprecedented economic and demographic growth. Consumption and production modes have changed a lot. This directly affects the quantity, but also the variety of produced waste (household, hospital, industrial, etc.) among which some are complex to eliminate and require more precaution and organisation. In fact, a good knowledge and a well-adapted waste management are essential to ensure the healthiness of a neighbourhood or a city and to protect the environment.

The creation of the Waste Recycling Centre in Blida, Algeria (see p. 34) was a first step towards a sustainable North-South transfer of knowledge in the field of waste management. In 2003, in order to reinforce the capacities of future stakeholders, sba set up in Switzerland, with the support of SDC, a week of practical training on waste management and recycling called “Waste Management Training from A to Z”.

To broaden the network of beneficiaries and capitalise on experiences of different projects in the Maghreb and francophone countries of Africa, the training has been renewed in 2004. It attracted numerous candidates from diverse horizons (universities, administration, enterprises, cleaning companies, NGOs, counselling companies, etc.) and from 15 different countries (Algeria, Benin, Burkina Faso, Congo, Côte d’Ivoire, Guinea, Iraq, Lebanon, Madagascar, Mali, Morocco, Mauritania, Senegal, Togo, Tunisia). The two training sessions “Waste Management Training from A to Z” hence allowed the training of 37 persons – among which 11 women – to promote good practices and waste recycling.

From learning to application

“The Waste Management Training from A to Z” allowed participants to acquire:

- Know-how in the technical management of a waste recycling centre
- Knowledge to identify types waste and recognise precisely raw materials and secondary materials, as well as their recycling potential
- Know-how to manage the complexity of the relationships between all stakeholders (citizen, enterprise, administration, waste recycling centre, collecting companies and recuperators)
- Knowledge of the legal base specific to each region

During the training, participants completed case studies on the setting and implementation a waste recycling structure adapted to their country. This work enabled them to identify various aspects of waste management and different steps of realising a project according to the specific needs of a region. Thus, the ownership of the concept by the population is easier and smoother if the project is adapted to the local context.

Accomplishments and follow-up

Some projects developed during the training have reached an advanced achievement phase. A particularly successful example was the creation of a municipal waste management and recycling centre in Kélibia (Tunisia) by Kélibia Environment Association.

Setting up an online discussion group on waste has allowed the participants in the “Waste Management Training from A to Z” to continue sharing experiences and obtaining advice to develop new projects. Today, the network counts more than 200 members.
Continuous training sba-EPFL-UNIGE

Continuous training is a decisive and essential step in improving the competences of institutions and individuals. It is also one of the cornerstones of social and economic progress in view of a competitive market and continuous changes in the field of knowledge.

In 2005, sba, the Swiss Federal Institute of Technology (EPFL) and the Centre of Human Ecology and Environmental Sciences of the Geneva University (UNIGE) joined their skills and environmental expertise to launch, with the support of the SDC, a continuous training programme. This programme focuses on eco-management, cleaner production and environmental economy and is destined to executives in the Maghreb, the Middle-East and francophone Africa. The aim was to form people in responsibility positions in diverse sectors (enterprises, industries, engineering offices, consultants, public administrations and universities) to provide environmental training a privileged and perennial place in these countries. The conclusive results of the first session encouraged organisers to reiterate the operation in 2006 and again in 2007.

Openings and Perspectives

Since the launching of this initiative, 72 executives have been trained to the principles of environmental management. These qualified persons have become in their country and within their enterprises, the disseminators of innovative knowledge and know-how. In fact, a survey carried out by sba showed that 78% of them used the knowledge acquired during the training within the framework of their professional activities, thus allowing them to succeed in their structure, achieving environmental projects and awareness actions. Among the respondents 43% noted a favourable impact on their professional position after the continuous training and 87% confirmed that they transferred knowledge to their colleagues by organising meetings, promotional events or even through sharing documents and publications.

Content and Methodology

Training modules are organised in such a way to contribute to a gradual learning of environmental management: the first 6 weeks of online courses (see E-learning p. 32) are intended as an upgrade and a prerequisite for the candidates to attend the subsequent courses in Switzerland. Face-to-face courses would follow with a 10-day basic module to present the principles of eco-management. Then two specialised modules (10 days) are proposed in parallel. Learners have the opportunity to tackle different methodologies and concepts and to deepen their knowledge of the notions in order to use them professionally, without yet being specialists.

The methodological conception of this continuous training focuses on the targeted public, its expectations and the learning goals. The exchange between speakers and learners are encouraged thanks to the diversity of the training activities: real case studies, role play, computer assisted practical work, field trips, etc. The latter allow learners to meet professionals and observe how they work with solutions brought forth by Swiss enterprises to environmental issues.

Continuous training leads to a Certificate of Advanced Studies (10 ECTS credits) issued by the EPFL and corresponding to hours of contacts in the training session and the research project accomplished by participants.
E-learning

What is e-learning?
On-line learning or e-learning is a remote learning approach using the internet technologies. The internet is particularly well suited to continuous training, higher education and training in enterprise by targeting adult learners who are autonomous in organising their learning process.

Flexibility of e-learning allows participants to self-manage their learning in order to reach their goals. It allows working people to follow a training course without being continuously on the move as it is the case of a traditional course (where attendance is mandatory).

Different forms of online education

Asynchronous training
Training method in deferred time allowing the learner to access the training courses at their own pace (the content is in the form of texts, multimedia animations, etc.)

Synchronous training
The participant is in contact with the tutor and other members of the training through an on-line chatting application or videoconferences. Hence, connected participants can ask questions and receive answers as if present, regardless of the distance.

Mixed training
A formula combining on-line training and face-to-face courses. E-learning is used to standardise knowledge before a presentation, a conference, a speech or a training session (if a prerequisite). Similarly it can serve to deepen notions after a face-to-face session.

E-learning development by sba
Demand for interactive trainings based on Information and Communication Technologies (ICT) is increasing sharply. They offer flexibility in the dissemination of knowledge, facilitating access to information, improving training coordination and reinforcing self-learning. To respond to this need sba set up many adult training programmes in which remote training is an integral part of the learning process. This is how the sba e-learning platform was established in 2002.
Specificities and advantages of *sba* e-learning platform

E-learning courses set forth by *sba* are based on a synergy between theory and practice. In fact, these trainings start by methodological sequences followed by several kinds of exercises allowing the participants to deepen their knowledge through practice.

During the trainings an on-line forum and a documents section are made available to facilitate exchanges among participants and instructors, as well as handing in the required documentation.
**DELTA eco-management modules**

Different aspects of eco-management are studied in these modules, namely the basic concept of eco-efficiency, a management strategy consisting in optimising the use of resources and reducing the impacts on environment, in order to increase the value of the product or the service. More concretely the use of many methodological tools is taught: the Good Housekeeping guide, the ecomapping, the Environmental Self-Diagnosis Guide or even the Environmental Performance Indicators (cf. DELTA programme p. 6-8).

The organisation of an eco-management e-learning course is carried out upon request (sba@sba-int.ch), allowing to offer a personalised programme adapted to participants’ expectations.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Awarded Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-management (since 2002)</td>
<td>450</td>
</tr>
<tr>
<td>Continuous Training sba/EPFL/UNIGE (2005-2007)</td>
<td>195</td>
</tr>
<tr>
<td>DAS ESEC (since 2008)</td>
<td>12</td>
</tr>
<tr>
<td>Networking (since 2009)</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>674</strong></td>
</tr>
</tbody>
</table>

**Continuous training sba/EPFL/UNIGE**

The e-learning phase of the sba/EPFL/UNIGE (2005-2007, cf. p. 29), combines synchronous activities, through the direct interactions in real time, and asynchronous ones allowing participants to manage their learning process on their own.

The programme is designed around different modules. Learners are first initiated to essential principles of eco-management, and then they learn to use a wide range of eco-management tools. In a second phase, they must apply these tools on the field. Hence, they have become familiar with methodological guides on eco-management through being aware of economic and environmental challenges of the enterprise. To conclude, the activities of participants are assessed according to the participation level (20%), hand-in exercises (20%) and the report of implementation in the enterprise (60%).

**DAS ESEC**

The training of the “Diploma of Advanced Studies in Environmental Strategy and Economic Challenges” (DAS ESEC, cf. p. 27) offers a mixed training programme with multidisciplinary and complementary components. The training starts with an e-learning course allowing different participants to assimilate the necessary information in order to attend the programme on a common foundation.

Like all e-learning trainings offered by sba, the content is structured in different sequences combining theory and practice. Every sequence is concluded by a collective chat session, to answer the participants’ questions and to develop themes studied. The final step of this e-learning consists in implementing the tools studied in an enterprise. The e-learning platform remains active during all the training.
Network Management

Networks are a complex and dynamic system connecting individuals and organisations, hence contributing to a better coordination in common actions. Networks vary in shape and in structure and can be classified in three main categories: community of practice, social networks and formal networks. Organised by sba, in partnership with the NGO SKAT, the Network Management course via e-learning mainly focuses on aspects linked to formal networks, defined as being interdependent groups of institutions or organisations established according to a specific need or conception. This situation offers a wide array of possible improvements with respect to the management of existing networks.

The goal of the e-learning course is to introduce a conceptual and methodological comprehension of the creation and management of formal networks, by reinforcing the management and communication capacities of participants. Thus, the course allows optimising the sharing of information, knowledge and experience. Different e-learning tools are used to this purpose, theoretical corpus, free or assisted chat sessions, on-line exercises, case studies and other practical work.

In development…

A course on environmental economy will soon be proposed on the sba e-learning platform. The method of this teaching consists in gathering all economic tools and notions to understand current environmental problems and examine them from an economist perspective in order to analyse the proposed solutions (environmental taxes, ecologic taxation or even exchangeable certificates).
Waste Management and Recycling

The birth of a pioneer project in the Maghreb

The project of creating a waste recycling centre, for non hazardous industrial waste was initiated following a seminar organised by sba and APEQUE (Association for the Promotion of Eco-efficiency and Quality in the Enterprise). In the beginning of 2001, KLI Conseil, a consulting firm in Algiers, conducted the feasibility study. Thus, the project was launched, led by sba and funded by the SDC, in partnership with the Ministry of Environment, the municipality of Blida and the Club of Industrialists and entrepreneurs of the Mitidja.

In September 2003, sba organised a training session in Switzerland for the Algerian stakeholders (The Waste Management training from A to Z). They visited several Swiss installations and attended seminars to clarify the concept of a waste recycling centre and better understand the project to be carried out in Blida, since it was the first of its kind in the Maghreb. Afterward, Swiss experts visited the site to transfer their knowledge and bring their experience to the Algerian staff. Establishing the project required a good communication strategy, a Marketing Plan was set up including an awareness raising programme for industrialists. The site reserved for the Waste Recycling Centre is within an area that already contains a composting plant and a waste water treatment plant. The choice was made to develop a waste treatment complex for the municipality of Blida. Moreover, it is located near industrial zones in the outskirts of urban centres.

Functioning and management of the waste recycling centre

Since summer 2004, the Waste Recycling Centre of Blida constitutes an interface between industrialists and waste recuperators for a better management of non hazardous industrial waste, such as: ferrous and non ferrous metals, paper, cardboard, wooden pallets, glass, fabrics, PET bottles and PE plastic films. It has a well equipped and guarded infrastructure including areas for selected and temporary waste deposit.

Despite of the fact that the main part of the stocks is generated by industrial plants, a door to door collection was also organised among the small businesses of Blida in order to set up a local service available to the users. Moreover, the manager of the Waste Recycling Centre has established collaboration agreements with local recuperators. All gathered materials are sorted and packed before being sold to specialised companies.

The movements of waste, with their corresponding weights and costs, are monitored in a database. This allows the Waste Recycling Centre to control the evolution of its activities over time.

The management of the Waste Recycling Centre in Blida, from a commercial point of view, is an example to be followed. The investments needed to achieve the project were around 480’000 CHF. Operating costs are estimated to be 60’000 CHF with increasing revenues reaching 35’000 CHF per month. These results show the potential for job creation and added value. The smooth functioning of the Centre has been recognised by all the partners in the project, including industrialists.
Impacts on the environment and the industry

Hundreds of tons collected monthly are recycled and can therefore go back into the production loop as secondary raw materials, thus reducing the number of unauthorised dumps and optimising the life of regular landfills.

The Blida Waste Recycling Centre serves many industrial plants, helping them to respect the environment and the Algerian law on waste treatment and disposal. Recuperators benefit from the infrastructure of the Centre and also from the integration of waste in the formal sector (the Waste Recycling Centre issues treatment vouchers for all the incoming waste). However, incentives for industrialists to sort their waste were faced by some reluctance. Therefore an awareness programme was carried out for the economic players of the region. The project has thus gained an educational dimension and underlined the necessity of having a responsible eco-citizen attitude toward waste management.

Perspectives

The issue at stake in the Algero-Swiss cooperation project was to scale down the non hazardous industrial waste problem and improve its management at the local level while bringing a new concept to Algeria.

This pioneer project demonstrated, with some difficulties, the technical feasibility of such a structure and its compliance with the environmental requirements in a country of the Maghreb. The Waste Recycling Centre has enabled other municipalities and towns to consider similar projects. Therefore, it is a reference in all of the Maghreb and would permit to train managers of similar facilities within a framework of South-South partnership and know-how exchange. For the Blida Waste Recycling Centre to remain a pioneering and leading project from technical, organisational and environmental points of view, it is important to ensure a continuous training for its collaborators, especially with respect to the transfer of skills and competences (training of trainers).

Socio-economic impacts

The Waste Recycling Centre of Blida has also involved the rag pickers (informal sector) of the region through close collaboration on certain materials. Moreover, the Centre employs to this day 12 staff. It is worth noting that jobs in this field have two undeniable advantages: first they are lasting (waste are an endless repository), they can’t be relocated since waste management has to be done on a local level for profitability issues. Moreover, a training programme for all the agents at the Waste Recycling Centre was set up to improve the quality of the services offered.
Hazardous waste in Jordan

Managing hazardous materials (HM) and hazardous waste (HW) in Jordan, as in many other countries, is an important environmental problem that grabs the attention of industrialists and government more and more. The Jordanian government has thus promulgated laws and regulations for the safe management and control of hazardous materials. It has also determined guidelines for the management of hazardous waste. However, directives for the implementation of these laws and regulations are not yet completely mature.

The Royal Scientific Society (RSS) conducted a survey, from December 2003 to January 2004, to analyse the industrial context in Jordan. This survey showed that many SME used hazardous materials and thus generated hazardous waste of many types. Due to their lack of knowledge in this field, enterprises often have difficulties to comply with local compulsory regulations concerning the management of these materials.

To palliate this situation, sba and RSS have developed a handy guide for enterprises to identify, quantify and manage HM and HW in an integrated manner from an environmental point of view.

A practical guide for SME

The methodology used in the “Guide to manage hazardous materials and hazardous waste in SME” is interactive and rich in real life examples. It is based on the motivation of the enterprise and its interest in improving its working methods. The described steps allow the user to reach a better comprehension of the characteristics and specificities of HM and HW by including the risks inherent to poor management.

The first step consists in determining the profile of the enterprise, which will be the reference indicating its current situation. Then, the enterprise prepares an overview of the production process including the INputs and the OUTputs, the wastes and the emissions. Once the hazardous materials and hazardous waste are identified and quantified, it will be important to get to know the sorting modes as well as the storage and the disposal techniques. After that, there should be an evaluation for the compliance of these practices with the existing Jordanian legislations and regulations on one hand and the environmentally friendly practices on the other. We can then determine the potential for improvements that would serve as a basis to elaborate an action plan.

Security, ecology and…economies

A good management system for HM and HW should be based on the following priorities: cleaner production, reusing and recycling, ecological treatment, in addition to the final disposal without harm. The enterprise must take into consideration these actions in order to minimise waste, to anticipate and avoid disposal problems and at the same time save on costs. Applying the actions mentioned in the guide will result in many gains:

- Increasing productivity by using raw materials more efficiently and improving the process
- Decreasing disposal costs of HW by reducing the quantities and types of waste
- Reducing the scope and costs of actions undertaken to comply with the regulations in place
- Improving the security and health of employees and reducing related costs by limiting the exposure to HW
Solidarity Fund

The Solidarity Fund of sba was launched in 2007 with the aim to contribute to poverty reduction in the MENA region. Through timely and targeted (financial, organisational and administrative) support, the objective is to enable beneficiaries to develop a viable economic activity and thus improve their quality of life. The Solidarity Fund can also be used to bring complementary solutions in case of ecological catastrophes and humanitarian issues.

2007 Project: Anarouze Association

*Weaving workshop, Aït Ben Haddou, Morocco*

For 25 years, Ms. Tahiri has managed a cooperative specialised in authentic weaving techniques of the Middle Atlas. During a mission to assess the situation of women rug weavers in Morocco, she discovered the ksar of Aït Ben Haddou, an ancient fortified village in the south of the country. This touristic site offered an exceptional opportunity to establish the traditional Berber rugs weaving craft. Ms. Tahiri decided therefore to open a community weaving workshop in the main alley of the ksar: Dâr Nisâja.

The solidarity funds of sba enabled the association to buy weaving looms, a starting stock of yarns, wool and other fabrics. sba also backed Anarouze to obtain a legal status. Ms. Tahiri then recruited a dynamic team constituted of apprentices and qualified women weavers. On March 8, 2008, Anarouze inaugurated Dâr Nisâja and started to produce and sell weaved rugs.

Anarouze association works on the long term to provide regular work for women living in a rural underprivileged region by creating crafts activities in the ksar of Aït Ben Haddou. In this same perspective, the association aims at forming a new generation of craftswomen and save traditional weaving techniques of Berber rugs and other fabrics.

The ksar of Aït Ben Haddou, where Anarouze association operates, is listed among the World Heritage sites of the UNESCO. Each year, nearly 250'000 tourists visit it. There is an important touristic potential and private initiatives are developing to exploit it.
2008-2009 Project: Nada Association
Scholarships for young people, Damascus, Syria

In a difficult socio-economic situation such as it is in Syria nowadays, the Damascene association Nada offers its support to orphans and youth of the poorest families by giving them the means to survive and be trained. By providing the financial support when needed, it enabled beneficiaries to better develop their skills and quickly reach self-sufficiency (ex: financing businesses, establishing training workshops for young female orphans). The association takes care and supports brilliant students whose families are unable to financially assume their studies.

sba has contributed to the project by assuming the responsibility for the studies of 12 young people selected by Nada Association. A fixed amount is paid monthly to cover all the expenses of an academic year: transportation, books, food, etc. They can therefore continue their studies without hassle. The selection of the students is done according to school records and motivation, the duration of the scholarship depend on the type of studies and the performance of the student. Nada association will then follow up the students through their academic studies offering them support they need to integrate the job market.
sba is an international NGO working to engage enterprises and public administrations in eco-efficiency, cleaner production and sustainable development with the aim of minimising environmental impact and improving business productivity. sba is active since 1995, mainly in the Arab countries and French speaking Africa, by managing several environmental projects in the framework of the Swiss and European cooperation.

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