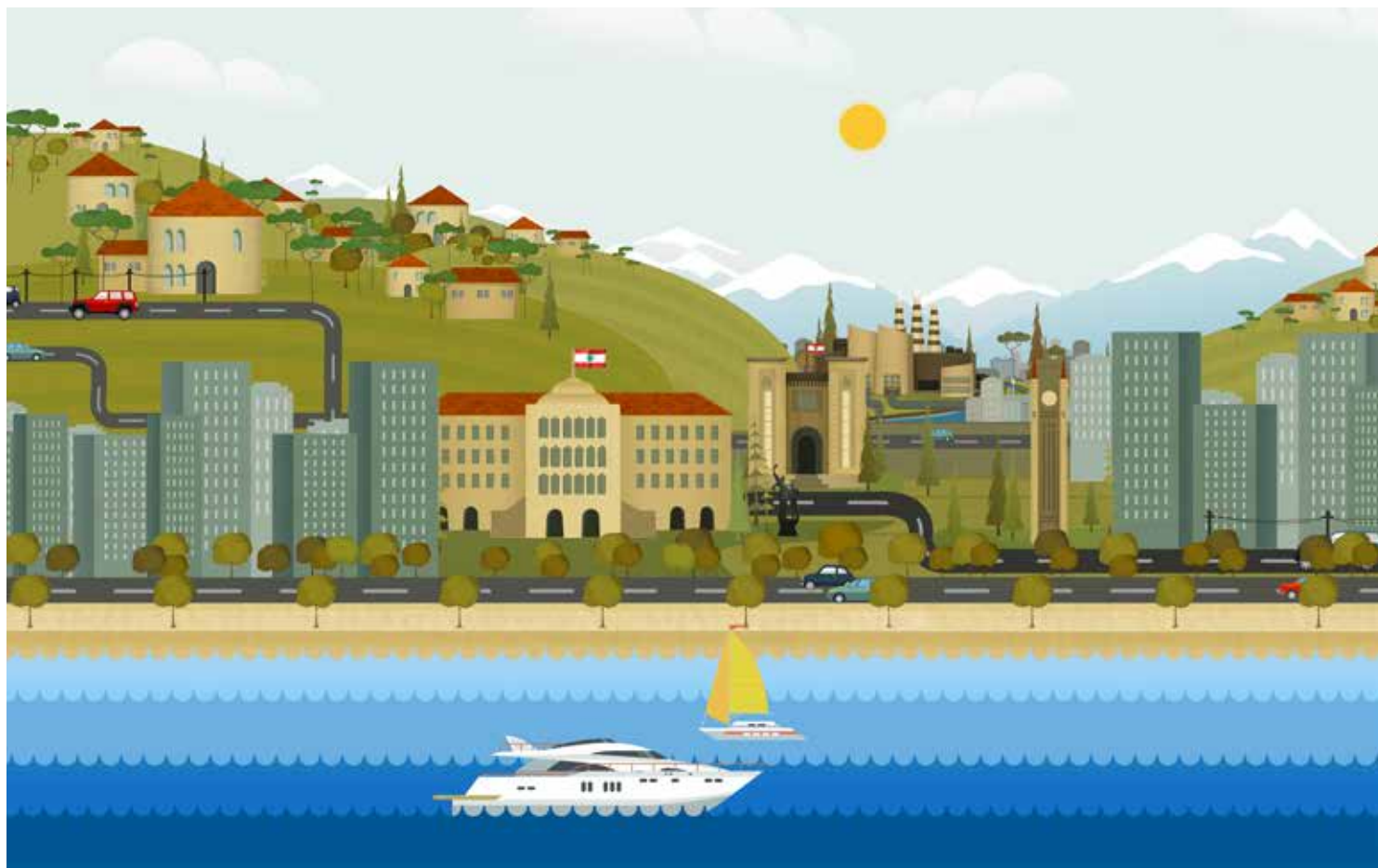




SCP National Action Plan



SUSTAINABLE CONSUMPTION AND PRODUCTION ACTION PLAN FOR THE INDUSTRIAL SECTOR IN LEBANON | 2015



**SwitchMed Programme is funded
by the European Union**

SwitchMed Programme is implemented by the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP), through the Mediterranean Action Plan (MAP) and its Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) and the Division of Technology, Industry and Economics (DTIE). For details on the SwitchMed Programme please contact **btuncer@scprac.org**



**Regional Activity Centre
for Sustainable Consumption
and Production**

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FOREWORD

It gives me a great pleasure to follow up on one of the most important recommendations of the Rio +20 Summit of 2012 for attaining sustainable development and renew Lebanon's commitments to shift towards Sustainable Consumption and Production Patterns. Originating from its holistic perspective and cross-cutting character, the Sustainable Consumption and Production approach will allow us to ensure that economic and social gains can be obtained without undermining environmental benefits. Improvement the quality of life and well being, and actively involving all stakeholders from public bodies to the private sector, research institutions and society at large.

Lebanon has engaged in the process of preparing its national agenda to adopt the concepts and approaches of Sustainable Consumption and Production, and since January 2015, the Ministry of Environment and the Ministry of Industry in Lebanon have embarked together on the development of Lebanon's Action Plan for Sustainable Consumption and Production for the Industrial Sector. This Action Plan was elaborated through a strong and active participatory approach ensuring the engagement of all Stakeholders, with the support of the European Union and the United Nations Environment Programme.

I would like to highlight the large national engagement for the adoption of this approach and for delivering Sustainable Consumption and Production patterns. This plan provides the priority actions to adopt Sustainable Consumption and Production in the industrial sector, and it will pave the way for the adoption of a similar approach in other sectors in Lebanon, and for the integration of Sustainable Consumption and Production in national policies and plans.

Mohamad Al Mashnouk

Minister of Environment

Beirut, 12/12/2015

ACKNOWLEDGMENTS

This report has been prepared with the support of the United Nations Environment Programme (UNEP) within the framework of the SwitchMed programme, financed by the European Union.

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About SwitchMed

The EU funded SwitchMed project is implemented jointly by the project countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine and Tunisia) and the institutional partners UNEP, UNIDO and SCP-RAC. SwitchMed is divided into 3 components addressing different parts of the transition process to Sustainable Consumption and Production (SCP) - SDG12:

- (i) A policy component, built around the Barcelona convention (for the Protection of the Mediterranean Sea and Coastal Regions) and SCP national action plans;
- (ii) Demonstration activities linked both to the policy component and the private sector;
- (iii) Networking function to allow for exchange, joint learning and further scaling up;

UNEP-DTIE is coordinating the national policy component – Reinforcing circular economy in the Mediterranean governance framework and mainstreaming SCP in national policies. Under the national policy component the project countries will develop Sustainable Consumption and Production National Action Plans (SCP-NAP).

The implementation methodology used under the SwitchMed national policy component has been adapted to each countries' specific needs and requests. To assure coherence between ongoing and previous national work, the activities at country level build on already existing work and projects (Green Economy, SCP assessments, sustainable development assessment and strategies, SCP projects, etc). In this process UNEP works with national consultants in the project countries to allow a transfer of knowledge and reinforcement of national capacity. The SCP-NAP methodology assures that a large and diverse group of national stakeholders are involved in the national process (government, civil society, private sector, media, academia, bi- and multilateral partners, UNCTs, etc). Furthermore collaborations with UN institutions and other bi-lateral partners have been established at country level.

Main objectives:

- Leapfrogging to socially inclusive Sustainable Consumption and Production practices preserving the environment;
- Integrating the natural capital and the environment in the core business of Mediterranean companies
- Creating a critical mass of citizens for SCP;

The successful development of eight SCP-NAPs demonstrates that:

- (i) in-country activities have to be nationally owned and nationally driven to be successful;
- (ii) the involvement of a large and diverse group of national stakeholders from the beginning of the planning process is crucial;
- (iii) linkages and synergies have to be established with already existing projects and initiatives and collaboration with other partners should be encouraged and fostered.

Each country has chosen to follow its own path to develop an SCP-NAP and this series of publications clearly shows the diversity of processes as well as outputs. In some countries the SCP-NAPs are based on SCP national assessments, while in other national partners decided to build upon already existing national SCP information and knowledge.

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LIST OF ACRONYMS

10YFP	10-Year Framework of Programmes on Sustainable Consumption and Production Patterns
ABL	Association of Banks in Lebanon
ALI	Association of Lebanese Industrialists
BAT	Best Available Technique
BdL	Banque du Liban
CAS	Central Administration of Statistics
CDR	Council for Development and Reconstruction
CNRS-L	Lebanese National Council for Scientific Research
CO ₂	Carbon Dioxide
CRDP	Center for Educational Research and Development
DTIE	Division of Technology, Industry and Economics (UNEP)
EFI	Environmental Fiscal Instruments
EFTA	European Free Trade Association
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FCCIA	Federation of Chambers of Commerce, Industry and Agriculture
GAFTA	Greater Arab Free Trade Area
GCC	Gulf Cooperation Countries
GPHD	Green Production Help Desk
HPMP	HCFC Phase-out Management Plan
IDAL	Investment Development Authority of Lebanon
ILO	International Labour Organization
IPPC	Integrated Pollution Prevention and Control
IRI	Industrial Research Institute
LARI	Lebanese Agricultural Research Institute
LCEC	Lebanese Center for Energy Conservation
LCPC	Lebanese Cleaner Production Centre
LEPAP	Lebanon Environmental Pollution Abatement Project
LIBNOR	Lebanese Standards Institution
MAP	Mediterranean Action Plan for the Barcelona Convention
MEHE	Ministry of Education and Higher Education

MoA	Ministry of Agriculture
MoE	Ministry of Environment
MoET	Ministry of Economy and Trade
MoEW	Ministry of Energy and Water
MoF/loF	Ministry of Finance/Institut des Finances Basil Fuleihan
MoI	Ministry of Industry
MoPWT	Ministry of Public Works and Transport
MVA	Manufacturing Value Added
NCE	National Council for the Environment
NGERs	National Green Export Reviews
NLUMP	National Land Use Master Plan
NMVOC	Non-Methane Volatile Organic Compounds
NO _x	Nitrogen Oxides
NSDS	National Sustainable Development Strategy
OMSAR	Office of the Minister of State or Administrative Reform
PCM	Presidency of the Council of Ministers
RECP	Resource Efficiency and Cleaner Production
SCP	Sustainable Consumption and Production
SCP/RAC	Sustainable Consumption and Production / Regional Activity Centre
SMEs	Small and Medium Enterprises
SO ₂	Sulphur Dioxide
StREG	Support to Reform-Environmental Governance
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Convention for Climate Change
UNIDO	United Nations Industrial Development Organization
WB	World Bank
WG	Working Group
WTO	World Trade Organization

1 INTRODUCTION & METHODOLOGY

1.1 What is the SCP Approach

SCP has been identified as one of the three “overarching tools/vehicles for sustainable development” in the World Summit for Sustainable Development in Johannesburg (2002). The Johannesburg Plan of Implementation has encouraged nations to develop **“a 10-year framework of programmes to accelerate the shift towards SCP to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste”**¹. To inform and support the development of those 10-year programmes, a global consultation, exchange and action process was launched through the Marrakech Process.

At the World Summit Rio +20 of 2012, the need to change the unsustainable way societies consume and produce was reaffirmed as one of the three overarching objectives for sustainable development. It was also acknowledged that governments should renew their commitment to shift towards SCP patterns with the adoption of the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP)².

The importance of the SCP approach originates from its holistic perspective and cross-cutting character. Conventional approaches dealing with environmental and social problems focusing on single sustainability aspects (e.g. water use, waste production, labour conditions, etc.) and/or on individual sectors or stakeholders, have not managed to achieve the desired change.

In order to be more successful in attaining sustainable development, the SCP approach integrates the following key principles³:

- i. **addressing key economic and social challenges** including meeting basic needs, unemployment, improving the quality of life and human well-being;
- ii. **decoupling economic development from environmental pressure** to avoid increasing environmental degradation or compromising opportunities for future generations;
- iii. **improving quality of life and well being**, alleviating poverty and promoting sustainable lifestyles;
- iv. **applying life cycle thinking –considering all the impacts that occur during the life cycle of the consumption-production chain**, as we live and operate in inter-connected systems, what happens in one system affects the others and vice versa;
- v. **actively involving all stakeholders from public bodies to the private sector, research institutions and society at large**, to influence the supply and demand for goods and services and to reduce the negative impacts of both production and consumption in an integrated manner; and
- vi. **guarding against the re-bounce effect**, where efficiency gains are offset by resulting increases in unsustainable consumption.

¹Plan of Implementation of the World Summit on Sustainable Development. New York: United Nations. 2002.

²Report of the United Nations Conference on Sustainable Development (Rio de Janeiro, Brazil, 20–22 June 2012), A/CONF.216/16. New York: United Nations. 2012

³Planning For Change. Guidelines for National Programmes on Sustainable Consumption and Production. Paris: United Nations Environment Programme. 2008.

The SCP approach holds ‘**life cycle thinking**’ at its core. It involves considering and understanding the environmental and social impacts that a product, service or solution causes at each stage of its lifecycle, from the extraction of raw materials, to their processing, design and production/manufacture, through to distribution, use/re-use or delivery to end-of-life disposal.

The stages and main targeted actors are summarised as follows and further presented in Figure 1:

- **Extraction of natural resources:** Examples include national raw material strategies, renewable material strategies, water management strategies, strategies for the reuse and recycling of old materials and taxes on raw materials.
- **Manufacturing:** Examples include policies to promote the application of cleaner production, the use of environmental management systems in business, the greening of supply chains, corporate social responsibility, environmental accounting and reporting as well as environmental technologies, including renewable energy.
- **Provision of goods and services:** Examples include integrated product policy strategies, eco-design policies, eco-label programmes, policies addressing the retail sector and policies supporting fair trade.
- **Acquisition and use:** Examples include consumer policies, green/sustainable public procurement policies, consumer campaigns, and green taxes aimed at consumers.
- **End-of-useful-life management:** Examples include waste management plans, landfill taxes and extended producer responsibility schemes. Regulatory and economic measures are commonly employed for this life cycle stage to ensure that different waste types are appropriately handled.

Figure 1. Life cycle stages of production-consumption⁴



⁴Adapted from SWITCH-Asia Network Facility

1.2 SWITCH-Med as a driver for SCP in the Mediterranean and in Lebanon

The SWITCH-Med Programme, financed by the European Union (EU), has been designed as a multi-component programme to facilitate the shift towards SCP in the Southern Mediterranean Region. SWITCH-Med is jointly implemented by UNEP (Mediterranean Action Plan for the Barcelona Convention-MAP and Division of Technology, Industry and Economics (UNEP-DTIE), Sustainable Consumption and Production Regional Activity Centre (SCP/RAC) and the United Nations Industrial Development Organization (UNIDO). It is composed of three interlinked components: a policy component, a demonstration component, and a networking component.

The “SWITCH-Med National Policy Component” is implemented by UNEP-DTIE and aims at strengthening relevant environmental governance and policy frameworks. With broad stakeholder participation, it will develop/refine national SCP policy action plans in the beneficiary countries and develop a regional SCP action plan and roadmap under the Barcelona Convention.

As the Focal point of the National Policy Component of SWITCH-Med, the Ministry of Environment (MoE) in Lebanon is developing an SCP Action Plan for the Industrial Sector in Lebanon, in close collaboration with the Ministry of Industry (Mol) and other key partners. The SCP Action Plan development process will provide Lebanon with a participatory and consultative approach for mainstreaming SCP in the industrial sector’s policies and plans.

Lebanon has chosen this approach for the development of its first SCP Action Plan for the Industrial Sector for the following main reasons which are further detailed in the following sections:

- (i) An on-going momentum for mainstreaming SCP in the national planning process in Lebanon is in place and will allow Lebanon to adopt a comprehensive and inclusive approach for SCP across all sectors;
- (ii) An on-going momentum for the development of the industrial sector in line with sustainable development and SCP approaches and in light of the socio-economic potential which this sector represents at the national level.
- (iii) Other national specificities including synergies with on-going related initiatives such as the SWITCH-Med/MEDTEST II project and the importance of focusing the SCP Action Plan on the industrial activities in the Litani Basin and Qaraoun Lake as a national priority for the management of water resources in Lebanon.

As such, Lebanon will ensure that the SCP Action Plan development process responds to the guidance provided by UNEP as implementing agency of SWITCH-Med and will allow Lebanon to benefit from on-going momentum to develop and implement the SCP Action Plan for the Industrial Sector and use it as a model for the develop of future sectoral SCP Action Plans for other priority sectors in Lebanon.

The SCP Action Plan development process will therefore be specific to the current needs of Lebanon and at the same time it will follow the regional experience and lessons generated from the SWITCH-Med Programme (refer to Box 1 below).

Box 1. Specificity of the SCP Action Plan for the Industrial Sector in Lebanon⁵

Lebanon's decision to develop a sector specific and geographically limited SCP Action Plan for the Industrial is both a challenge and a great opportunity for Lebanon and for the other stakeholders.

The main aspects raised at the SWITCH-Med National Focal Points workshop in June 2015 regarding the development process of the SCP Action Plan for the Industrial Sector in Lebanon have included the following:

- Importance to show that linkages between the relevant stakeholders in the selected sector (industry) are clearly understood and operational;
- Ministry of Environment has the lead of the process, however Ministry of Industry has to be fully involved and active in the process;
- Make sure that synergies with the relevant project components are included and recognized;
- SCP is not cleaner production, the Consumption part has to be relevant, visible and understood;
- SCP-NAP will not become an Industry Strategy for the Litani River;
- Include a monitoring and evaluation mechanism for the SCP-NAP implementation;
- Describe the "validation" process and explain how the SCP-NAP will become a strategy that is nationally adopted and validated;
- Make sure that the SCP-NAP is not limited to a list of projects and programs, but further allows SCP to become sustainable in Lebanon.

1.3 Methodology for Development of the SCP Action Plan for the Industrial Sector

The process for the development of the SCP Action Plan for the Industrial Sector in Lebanon is based on the '**Planning for Change**' methodology of UNEP⁶ (as summarized in Figure 2 below) and is based on 3 key phases:

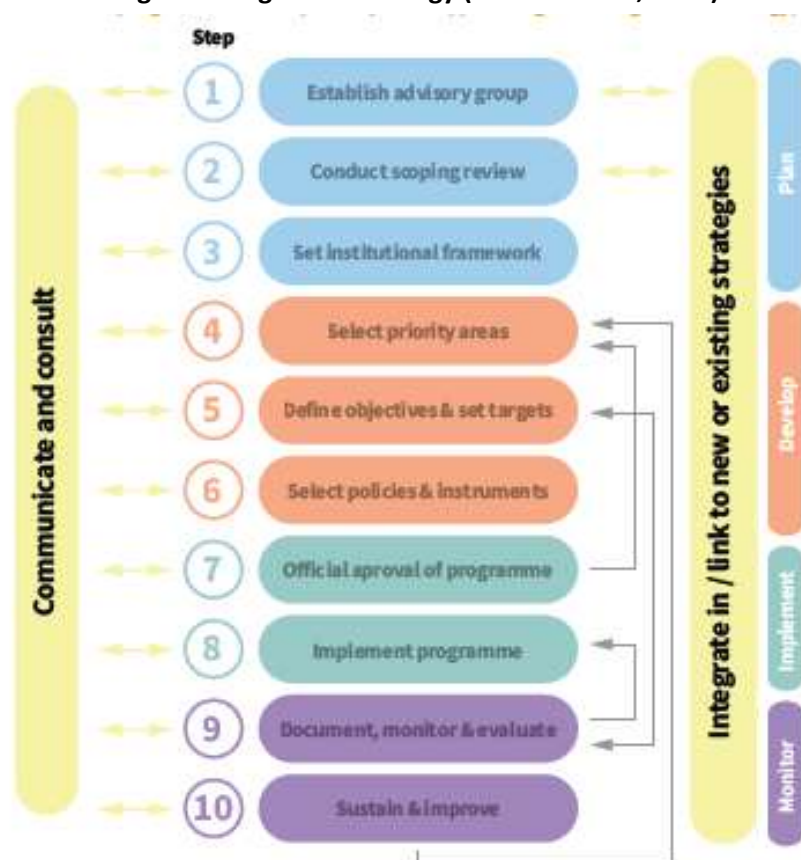
- i. **The Planning Phase of the SCP Action Plan** includes mainly the preparation of the "**Scoping Review of the SCP Action Plan for the Industrial Sector in Lebanon**". The Scoping Review included **stakeholders mapping** covering a comprehensive stakeholder identification process based on a coherent understanding of the purpose and the context of the SCP planning process. The scoping review also included a **scoping of policies and actions in the industrial sector related to SCP**; it provided an overview of current policies and plans in the industrial sector where the integration of SCP principles is needed. This phase also included identification of the relevant institutional mechanisms for the participation of concerned stakeholders and validation of the Action Plan.
- ii. **The Development Phase of the Action Plan** is leading to the "**An SCP Action Plan for the industrial sector in Lebanon**", which is based on the outcomes of this "Planning" phase. It should be noted that this step will ensure that **special focus on the Litani River and Qaraoun Lake** and accordingly a special considerations of the SCP action plan are dedicated to cover the industrial sector in the catchment area of the Litani River and Qaraoun Lake given the importance of this catchment area to water resources management in Lebanon in specific and sustainable development in Lebanon as a whole.

⁵ Personal communication. 10/6/2015. Mr. Luc Reuter, Sustainable Lifestyles, Cities and Industry, "Delivering SCP", UNEP/DTIE

⁶ Planning For Change. Guidelines for National Programmes on Sustainable Consumption and Production. Paris: United Nations Environment Programme. 2008.

- iii. **The Implementation and Monitoring of the SCP Action Plan** will be based on the outputs and activities identified under the SCP Action Plan and will be coordinated by the Sectoral Working Group established as part of the action plan development process. It is expected that the development process of the SCP Action Plan will allow national engagement in the identification of the priority actions and thus the adherence of the different concerned stakeholder groups to the implementation of the proposed actions and to the sustainability of the SCP Action Plan in Lebanon.

Figure 2. Planning for change methodology (Source: UNEP, 2008)



The Planning for Change methodology is also based on a National Participation and Validation Process which will ensure that all phases of the SCP Action Plan will be subject to a **Stakeholders Consultation Process** throughout the whole process leading of the development of the SCP Action Plan. In Lebanon, the consultation process with all concerned stakeholder groups is implemented by calling upon the following consultative mechanisms:

- **A SCP Working Group (WG).** A sectoral working group was established and ensured overall coordination and technical guidance for the SCP action plan development process. Initially, the membership of the WG included the following institutions: MoE, MoI, Association of Lebanese Industrialist (ALI) and UNIDO. The Working Group was later extended to include the following key institutions involved in SCP as a mechanism for coordination on the implementation of the SCP

Action Plan:

- i. **Ministry of Environment,**
 - ii. **Ministry of Industry,**
 - iii. **Ministry of Finance/ Institut des Finances Basil Fuleihan (MoF/IoF),**
 - iv. **Ministry of Economy and Trade (MoET),**
 - v. **Association of Lebanese Industrialists,**
 - vi. **Federation of Chambers of Commerce, Industry and Agriculture (FCCIA), and**
 - vii. **UNIDO.**
- **SCP roundtable meetings**, these were organized to present and discuss, with all concerned national stakeholder groups, the SCP Scoping Review and SCP Action Plan, in order to confirm the status and priority issues related to SCP in the industrial sector in Lebanon among concerned national stakeholders and ensure national validation of the proposed action plan for SCP for the industrial sector. Two national roundtable meetings were held during the preparation of the SCP action plan and the reports of the meetings were shared with all participants (Figures 3).
- **The validation process of the SCP Action Plan** was done at the level of the National Council for the Environment (NCE), which is legally established as per the Decree 8157/2012 and represents all concerned stakeholders in environmental management and sustainable development in Lebanon, including Governmental institutions, private sector, NGOs and academia. The NCE is mandated with an advisory role and will be called upon to give its views on national environmental policies and plans as well as on mainstreaming of environmental issues in sectoral development policies in view of promoting sustainable development. Although validation by the Council of Ministers would be more desirable as it gives more sustainability for the action plan, such a step could be foreseen in the long-term rather than the short-term given the extensive timelines needed for such a validation modality.



Figure 3. Meeting of the National Council for the Environment of 24 November 2015 endorsing the SCP Action Plan

2 BASIS FOR THE SCP ACTION PLAN FOR THE INDUSTRIAL SECTOR IN LEBANON

2.1 The national momentum for SCP in Lebanon

Lebanon has developed an array of policies and plans covering sustainable development issues at national and sectoral levels and providing Lebanon with a an important understanding of sustainable development challenges to be addressed in the wake of socio-economic and environmental challenges facing Lebanon.

At a national level, comprehensive and in-depth assessment and plans include the following:

- National Land Use Master Plan (NLUMP) of the Lebanese Territory (CDR, 2004)
- State of the Environment Report in Lebanon (MoE/UNDP/ECODIT, 2010)
- Strategy for the Reform and Development of Public Administration in Lebanon (OMSAR, 2011)
- Economic & Social Reform Action Plan (PCM, 2012)

Lebanon has also obtained extensive support by international donors to prepare national assessments in support of policy planning in the country, those related to sustainable development have included, among others:

- Lebanon Country Environmental Analysis (WB, 2011)
- National Report to Rio+20 (MoE/ECODIT/UNDP, 2012)
- Lebanon Millennium Development Goals Report 2013-2014 (CDR/UNDP, 2014)
- National Assessment of the Sustainable Development Framework in Lebanon (MoE/ESCWA, 2015)

At a sectoral level, several policies and plans have been developed and have included environment and sustainable development as an integral part or have conducted an SEA in order to align these plans with national and international social and environmental safeguards. This could provide basis for setting up sector specific objectives and targets.

Building upon the above achievements, the Presidency of the Council of Ministers in cooperation with the Ministry of Environment, launched in March 2015 the “Roadmap Towards the National Sustainable Development Strategy (NSDS) of Lebanon”, in the presence of a wide participation from different Ministries, members of Parliament, municipalities as well as representatives of the private sector, civil society, embassies, international organizations and the media.

The NSDS will provide Lebanon with a comprehensive National Strategy including an exhaustive economic vision as well as a strategic outlook to be used as a platform for specific policy measures, noting that such a strategy will allow to accelerate economic, social and administrative reform by following a holistic approach conducive to societal aspirations and that schedules national priorities in a sustainable manner. The methodology of preparing the National Sustainable Development Strategy is Aware of the importance of mainstreaming sustainable development and SCP concepts in the NSDS, the MoE has taken needed action to ensure that SCP is integrated in the NSDS at the development stage and

will be possible to ensure that the consultation process will be able to confirm the SCP principles and approaches which have been proposed across the different Strategic Objectives of the NSDS. As such, Lebanon will build upon the NSDS consultation process to adopt SCP principles as an integral part of its national planning process (refer to Box 2 below).

Box 2. Mainstreaming SCP in the NSDS

Through the EU/MoE StREG project, technical assistance is provided to support in mainstreaming SCP in the NSDS process. Consultation meetings, training and technical advice will be provided in order to identify opportunities for adopting SCP across all NSDS components. Given the nature of the NSDS which is very strategic and comprehensive, this will allow to integrate the concepts of SCP at an early stage of NSDS development process.

This will also ensure that the different institutions involved in the development of the NSDS can take stock of the proposed SCP approaches and propose ways of addressing them in drafting conclusions and recommendations for the implementation of the NSDS covering the different SCP issues which are proposed to be integrated in the NSDS.

Based on the above momentum for national planning for sustainable development in Lebanon and for mainstreaming SCP in the national planning process, Lebanon has proposed to adopt an approach of developing an SCP Action Plan for priority economic sectors in order to ensure that economic development is closely linked to the SCP concepts and approaches and identify specific and action oriented recommendations for mainstreaming SCP in these priority sectors. This would also allow practical implementation and monitoring of the SCP Action Plans and will enhance Lebanon's capacity for adopting SCP in practice.

2.2 Reasons for an SCP Action Plan for the Industrial Sector in Lebanon

The industrial sector in Lebanon is **considered as a real booster for the financial system and for sustainable employment**. It is Lebanon's shock absorber for the economy that can take in the highest level of turbulence and strife, although to date, the share of the industrial sector in the national economy is still small, with less than 10% of Lebanon's Gross Domestic Product (GDP), over the past 10 years⁷ as shown in Table 1 below.

Table 1. Gross Domestic Product By activity (in Billions of Lebanese pounds)⁸

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gross domestic product at market prices	31,877	32,396	33,238	37,497	44,061	53,482	57,918	60,414	66,481	71,185
Total manufacturing	2,392	2,518	2,523	2,866	3,809	4,408	4,663	4,866	5,163	5,830
% manufacturing	8	8	8	8	9	8	8	8	8	8

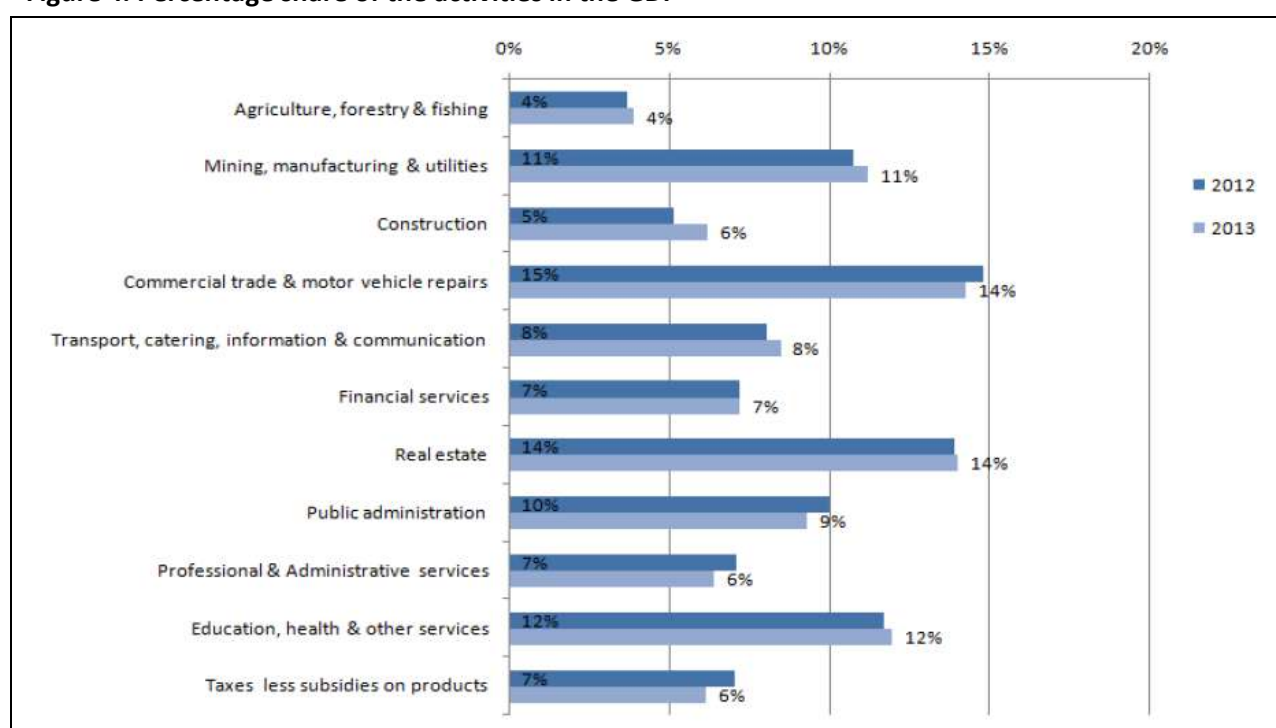
⁷CAS, 2014. Lebanese National Accounts.

⁸CAS, 2014. Lebanese National Accounts.

This is also confirmed through statistics conducted by UNIDO's and which indicate that in 2013, Lebanon's competitive industrial performance rank was 78 out of 136 and the Manufacturing Value Added (MVA) represented 8% of the Gross Domestic Product (GDP) or the equivalent of 2,408 million USD⁹.

Compared to the overall economic activities, the contribution of the industrial sector to the GDP remains an important one and constitutes an important share of the Lebanese economy; whereby "Manufacturing, Mining & utilities" activities rank as the 4th sector in terms of share in the GDP after the "Commercial trade & motor vehicle repairs", "Real estate", "Education, health and other services", as per Figure 4 below¹⁰.

Figure 4. Percentage share of the activities in the GDP¹¹



As such, the industrial sector represents an important potential for the economy of Lebanon and the support provided through SWITCH-Med for the development of an SCP Action Plan for the industrial sector comes at an opportune timing for integrating the concepts of SCP as a basis of its development.

Another important aspect of the industrial sector is its significant contribution to the Lebanese exports. It is estimated that industrial exports as a percent of total exports rose from 37% in 2000 to 83.9% in 2014 and the total value of the industrial exports have increased from US\$ 848 million in 2002 to US\$ 3.1 billion in 2014¹², which confirms the important place that this sector holds in Lebanon.

⁹ UNIDO, 2014. Statistical Country Briefs

¹⁰ CAS, 2014. Lebanese National Accounts.

¹¹ CAS, 2014. Lebanese National Accounts.

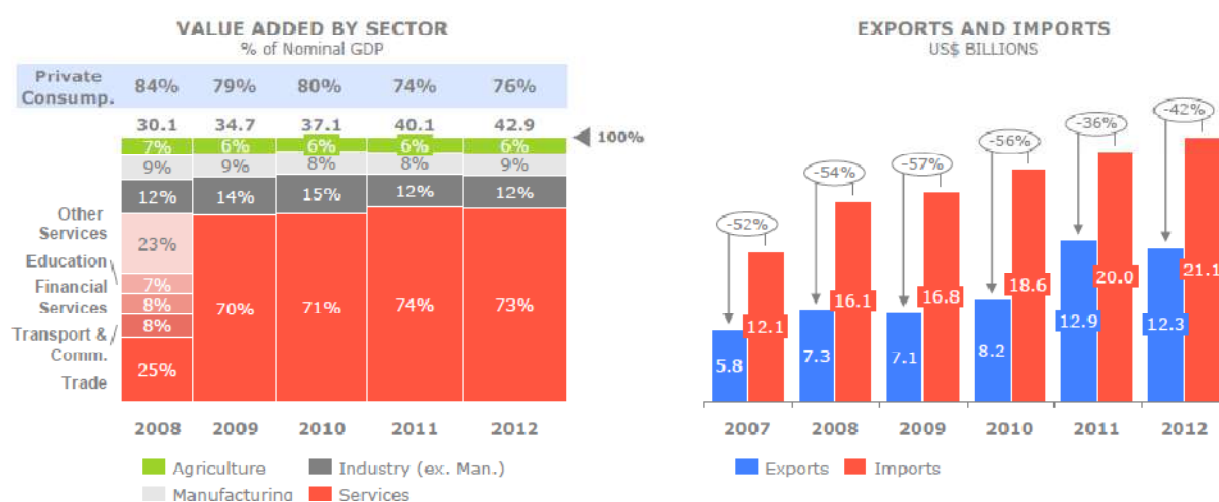
¹² www.industry.gov.lb

Lebanon has signed several **Trade Agreements**, all of which can play an important role in developing the industrial sector and can promote an SCP approach as part of these agreements. Free Trade Agreements were signed with Lebanon's major trading partners; namely the European Union (EU), the European Free Trade Association (EFTA) (Switzerland, Lichtenstein, Norway, Iceland), the Gulf Cooperation Countries (GCC) and the Greater Arab Free Trade Area (GAFTA).

Lebanon is also actively **negotiating accession to the World Trade Organization (WTO)** and is preparing to become a member of the WTO and is negotiating trade agreements with several countries (Iran, Turkey, Russia, etc...).

According to Lebanon's SME's strategy¹³, Lebanon is a small primarily consumer market dominated by services and trade and a high dependence on imports. Nominal GDP in 2012 reached US\$ 42.9 billion of which almost three quarters was in the tertiary sector (trade and services). Private consumption exceeded 75% compared to 52% and 64% for other Upper-Middle and Lower-Middle Income countries. Lastly, the import-export balance has been negative for the past years (Figure 5). This situation points to the fact that SMEs have to ultimately orient themselves to external markets and rely on global supply chains to conduct their business.

Figure 5. Lebanese Economic Structure¹⁴



An important characteristic of the manufacturing sector is Lebanon is **its capacity in producing and exporting highly sophisticated products**¹⁵. According to a study conducted by the Lebanese Center for Policy Studies, the overall level of export sophistication of the manufacturing sector in Lebanon has witnessed a substantial increase of 36% from 2000 to 2008, confirming that Lebanon's manufacturing sector is producing and exporting highly sophisticated products and qualifying the **Lebanese industrial exports as "An exception to the theory"** (refer to Box 3 below). **This encouraging trend for Lebanon can be further developed to support an SCP approach in the industrial sector and can be good basis for promoting life cycle approach and eco-design.**

¹³ MoET, 2014. Lebanon SME Strategy

¹⁴ World Bank Database 2014, IMF: Lebanon real GDP Growth Analysis 2010

¹⁵ Lebanese Center for Policy Studies, 2014. Lebanon's Industrial Policy Must Focus on Developing Highly Sophisticated Exports. Sami Atallah and Ilina Srouf.

Box 3. The Lebanese industrial exports are highly sophisticated and are “An exception to the theory”¹⁶

A product space is a network that mirrors the productive capacity or embedded knowledge of a country by highlighting the capabilities it possesses and the opportunities these imply. It is an industrial map that presents the idea of relatedness between different products traded in the global economy.

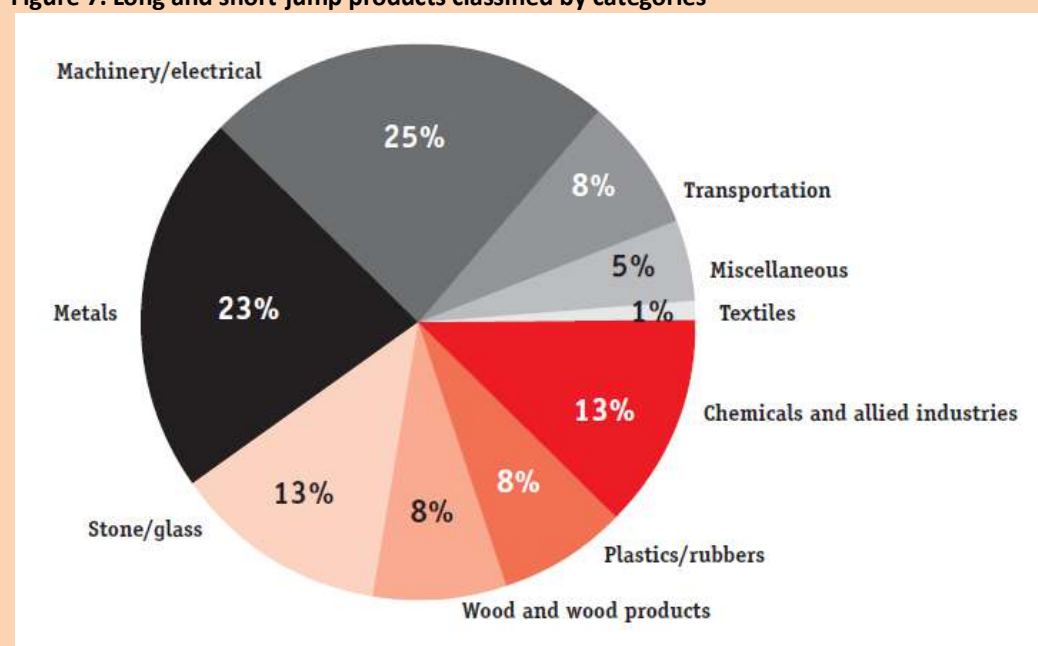
Products that are tightly connected on the map share most of the requisite capabilities. Products located on the periphery of the map are technically unsophisticated products, including raw materials, fresh vegetables, etc...

As we move toward the core of the map products become more sophisticated. A country's position on the product space determines its ability to move into new products. Countries can move to a new product that shares most of the requisite capabilities with the existing product basket, which is defined as making a 'short jump'. Countries can also move to a product that shares few capabilities with the existing basket, which is defined as making a 'long jump'.

Lebanon's position on the product space map improved by 36% from 2000 to 2008, whereby the number of core products increased by 21% while the number of periphery products increased by only 3%, reflecting an increase in the sophistication of Lebanese exports.

Among the product categories that have contributed to the product export basket are chemicals, plastics, rubber products, wood products, stone, glass, metals, machinery, electrical items, and items produced for the transportation sector as shown in Figure 5 below.

Figure 7. Long and short-jump products classified by categories



The study looked into the factors that caused these long jumps and the characteristics of the firms that have been able to achieve them and indicated the following factors:

- Overcoming demand uncertainties
- Adapting to export markets:
- Embracing the role of the entrepreneur

The study concludes that looking at the Lebanese manufacturing sector in 1975 compared to its present status, the sector appears to have regained the position it once had in the product space.

¹⁶Lebanese Center for Policy Studies, 2014. Lebanon's Industrial Policy Must Focus on Developing Highly Sophisticated Exports. Sami Atallah and Ilina Srour.

A final important element which confirms the potential for adopting SCP in the industrial sector is based on the ILO and UNDP **Assessment of Green Jobs in Lebanon**¹⁷. The assessment provided estimates of the number of potential green jobs in 4 sectors which are the following:

- Energy
- Building construction
- Agriculture
- Waste management

The assessment concluded that there is a considerable job creation potential in going green in Lebanon. According to this assessment, as new environmentally sustainable technologies and practices are introduced and adopted, new job opportunities across the sectors studied are expected to appear. **Although the assessment did not cover the potential for green jobs creation in the industrial sector, it has indicated that a potential for green jobs exists in the industrial sector and recommended that an in-depth assessment green jobs in the industrial sector would be conducted.**

Moreover, at the policy level, 2 key major frameworks related to the industrial sector confirm an enabling environment for mainstreaming SCP in the industrial policy planning, these include the following:

(i) Lebanon's Policy for the Industry for 2025

In June 2015, the Ministry of Industry has issued the national strategy for the industrial sector in Lebanon for 2025, namely "**Lebanon Industry 2025: The integrated vision of the Industrial Sector in Lebanon**". The strategy is composed of 7 operational objectives and includes among its objectives the Objective 5: "**Encourage Green Industries**", confirming the Mol's commitment to promote environmental management and SCP principles in the industrial sector (refer to Box 4 below).

Box 4. Lebanon's Strategy for the Industrial Sector¹⁸

Lebanon Industry 2025: The integrated vision of the Industrial Sector in Lebanon

Operational objectives

1. Expansion of domestic market by increasing production and reducing imports
2. Increase industrial exports
3. Increase the competitiveness of the national industry, internally and externally with consistency and steadiness
4. Increase investment and financing in the industrial sector
5. Encourage green industries
6. Encourage new knowledge industries
7. Media for the industry

The Fifth Objective of Lebanon's industrial strategy "Encourage Green Industries" calls upon the adoption of the following steps and which are in line with SCP approaches:

- Use of renewable and alternative energy and encourage increasing energy efficiency
- Encourage recycling
- Use industrial enterprises to obtain ISO 14000 certification environmental management and ISO26000 on Social responsibility
- Collaborate with Ministry of Environment to help industries becoming eco-friendly

¹⁷ ILO, UNDP, 2011. Assessment of Green Jobs in Lebanon

¹⁸ Mol, 2015. Lebanon Industry 2025

- Promote the use of green and energy saving buildings

The strategy proposes the following tools as a means to reach the steps of Objective 5 of the strategy:

- Adopt the model of industrial cooperation agreement that includes protection of green industries in the international agreements
- Spread the culture of energy conservation and use of alternative energies (workshops, seminars, training, media, advertising...)
- Empower the activities of Lebanon Cleaner Production Center (LCPC) Participate in the environmental awareness of industrial enterprises (workshops, seminars, training sessions...)
- Participate in scientific industrial research and promote the concept of green industry
- Work on passing the draft law submitted by the Ministry of Environment to amend article 5-bis and article 7 of the income tax law
- Work with various banking and financial entities provide soft loans for industries and environment eco-friendly buildings
- Seek to benefit from international grants specialized for the preservation of environment and alternative energies
- Enforce the concept of green industry gradually as one of the ministry's conditions for granting services to industries operation in Lebanon starting with industrial licensing.

(ii) Lebanon's SME's strategy

The proposed recommendations are also aligned with **Lebanon's SME's Strategy¹⁹ and its ambitious vision: "SMEs as Key Economic Engine for Growth and Job Creation" in Lebanon and which offers a synergies with the SCP Action Plan for the Industrial Sector** through its six strategic pillars which are the following:

1. Evolving Business Leaders: aims at assisting SME owner-managers in evolving their corporate culture, professionalizing management, developing new leaders, and transitioning to real effective corporate governance;
2. Facilitating the "Right" Funding: aims at encouraging SMEs to strengthen their capital structures for growth and resiliency, ensuring availability of adequate sources of funding adapted to SME needs, and providing a supporting framework to match smart VC/PE capital to entrepreneurs and business owners;
3. Improving Access to Markets: aims at minimizing structural market inefficiencies to improve SME competitiveness, and enhancing access to foreign markets and in particular to fast-growing economies and ones where Lebanon has an edge;
4. Enhancing Capabilities and Innovation Capacity: aims to build Lebanon's core specialized capabilities, and to develop supporting framework as well as interdependent networks that build upon Lebanon's differentiated capabilities found in both individuals and organizations;
5. Developing a Conducive Business Environment and National Environment: aims to address SME-critical elements of the business environment, focusing on developing SME-friendly employment, legal, regulatory and taxation frameworks, as well as concentrate infrastructure development efforts into coherent and comprehensive sector-focused zones;
6. Ensuring Coherence and Effective Coordination: aims at developing strong effective coordination mechanisms among public and private sector stakeholders in order to ensure coherence and streamlining of SME support efforts.

¹⁹MoET, 2014. Lebanon SME Strategy

3 SCOPING REVIEW OF SCP IN THE INDUSTRIAL SECTOR IN LEBANON

3.1 Description of the industrial sector in Lebanon

According to the latest industrial study conducted by the Ministry of Industry, a total of 4,033 industrial establishments²⁰ were present in 2007 in Lebanon²¹. The manufacturing activities in terms of Value Added (VA) as a percentage of the total Manufacturing Value Added (MVA) show that **around 50% of the industrial activity is concentrated at the level of 3 manufacturing sectors**²² which are the following:

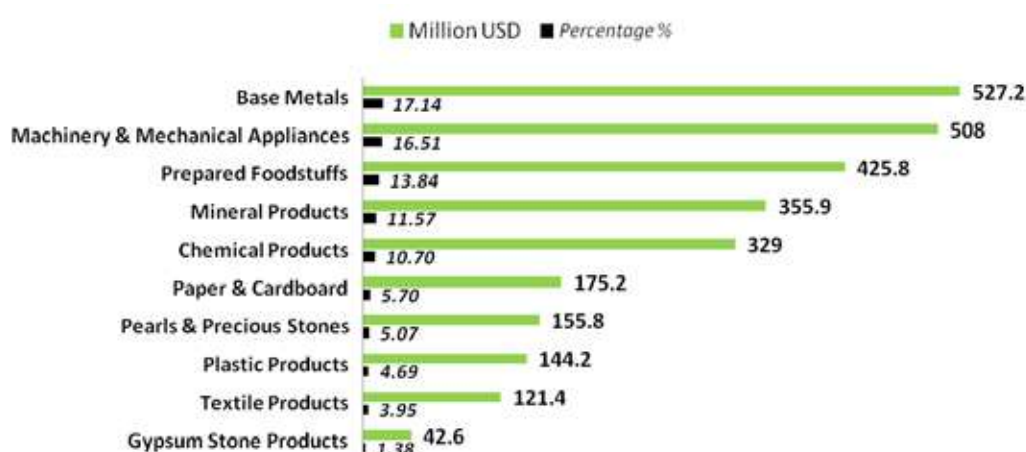
- i. Food and beverages (28% VA of total MVA);
- ii. Non-metallic mineral products (15% VA of total MVA) and
- iii. Electrical machinery and apparatus (10% VA of total MVA).

The industrial study also indicated that the industrial sector is not very diversified with **around 90% of the industries operating in 9 major sectors** (which are presented in the Table 2 below). On the other hand, the industrial exports show that the highest sectors in term of export include the following (refer to Figure 6 below):

- i. Fabricated metal products
- ii. Electrical machinery and apparatus
- iii. Food and beverages
- iv. Non-metallic mineral products
- v. Chemicals and chemical products

As such, both in the case of the national market and export market, the industrial sector shows limited diversification and most of the manufacturing activities are concentrated around few industrial sectors which merit to be taken into account in the context of the SCP action plan.

Figure 6. Top 10 industrial export items in 2013²³



²⁰ Industries which met the following criteria: employing more than 5 workers, operating area with at least 100 m² and energy consumption with a minimum of 50 Amperes or equivalent.

²¹ Mol/UNIDO/ALI, 2010. The Lebanese Industrial Sector: Facts and Findings. Study conducted in 2007

²² UNIDO, 2014; Statistical Country Briefs- Lebanon; <http://www.unido.org/en/resources/statistics>

²³ ALI, 2014. Flash report 2013

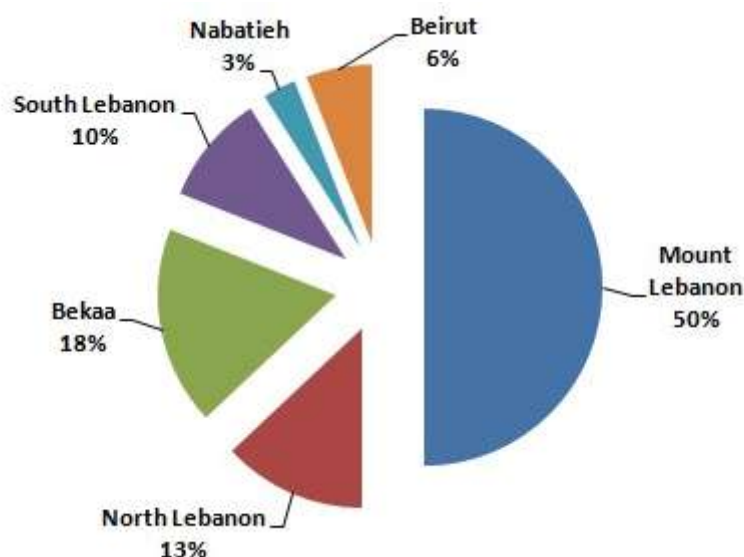
Table 2. Value Added of Industrial sectors compared to total Manufacturing Value Added²⁴

Industry (ISIC Revision 3 - 2 digit level)	Value in million US\$		In percentage to output		In percentage to total manufacturing	
	2007	...	2007	...	2007	...
Total manufacturing	1.34	...	30.72	...	100.00	...
15 - Food and beverages	0.37	...	31.81	...	27.45	...
26 - Non-metallic mineral products	0.19	...	35.82	...	14.09	...
31 - Electrical machinery and apparatus	0.13	...	27.33	...	9.70	...
36 - Furniture manufacturing	0.12	...	41.23	...	9.24	...
28 - Fabricated metal products	0.11	...	22.24	...	8.15	...
24 - Chemicals and chemical products	0.10	...	30.21	...	7.64	...
22 - Printing and publishing	0.08	...	41.55	...	5.66	...
21 - Paper and paper products	0.06	...	24.02	...	4.74	...
25 - Rubber and plastics products	0.05	...	21.40	...	3.41	...

The Industrial Study also indicated that the regional distribution of industries is the highest in Mount Lebanon which absorbs around 50% of the industries and in the Bekaa region with around 18% of the industries as shown in Figure 7 below. Again, regional distribution is an important element to take into account in the SCP action plan as it has important ramifications in the context of the SCP action plan for the industrial sector.

²⁴ UNIDO, 2014; Statistical Country Briefs- Lebanon; <http://www.unido.org/en/resources/statistics>

Figure 7. Regional distribution of the Lebanese industry in 2007²⁵



At a general level, the main obstacles facing the Lebanese industry as identified by Mol²⁶ and ALI²⁷, are the following:

- Chronic political and economic instability (greatest and most chronic challenge for the Lebanese industry)
- Absence of integrated, clear and purposeful socio-economic vision
- Lack of industrial policy
- Diminishing financial, human and technical resources for the industrial sector
- Lack of commitment by parties and partners to obligations (in relation to industry)
- Community resistance (culture, education, conflict of interests, ...)
- Unequal protection and trade measures for industrial products between Lebanon and other countries
- Labor force with limited skills and specialization
- High cost of national labor
- Absence of favorable infrastructure
- High prices of real estate property
- Unavailability of suitable industrial zones
- high energy costs
- Difficulty of land export (recent important challenge) which recently increasing the cost of production
- Internal and external competition
- Small and family owned companies and production factors

²⁵ Mol/UNIDO/ALI, 2010. The Lebanese Industrial Sector: Facts and Findings. Study conducted in 2007

²⁶ Mol, 2015. Integrated Vision for the Lebanese Industrial Sector: Lebanon Industry 2025

²⁷ ALI, 2014. Industrial Vision 2014-2018

3.2 Impact of the industrial sector on the environment in Lebanon

Environmental degradation caused by the industrial sector in Lebanon was estimated to be equivalent to 1.8% of the GDP in 2005 and to affect mainly the population living in urban and industrial areas²⁸. In a more specific approach, the environmental pressure of the industrial sector can be identified at the level of the ecosystem through potential air emissions, water consumption as well as wastewater and solid waste discharge. This section will provide some key indicators with regards to priority aspects where environmental pressure can be identified and thus where priority interventions might be needed.

At the level of industrial water demand

With regards to water demand, it is estimated that the industrial sector consumption ranges between 150 and 163 Mm³ per year, which is equivalent to around 11% of the total annual water demand²⁹. The projected water demand by the industrial sector is expected to reach up to 16% of the total annual water demand in 2030³⁰ (refer to Box 5).

Box 5. Industrial water demand

While water demand in the industrial sector does not seem alarming as a whole, water demand comes at a high cost to the industrial sector given its limited available quantity and quality, thus adding another burden to the production costs of the industries similarly to the energy and infrastructure requirements. Optimizing water consumption in the industrial sector not only contributes to the national water management policies but also to the efficiency of the sector itself.

At the level of industrial wastewater

With regards to industrial wastewater, it is estimated that the industrial sector produces around 60 Mm³ of industrial wastewater which constitutes around 20% of the total amount of wastewater in the country; while the remaining 250 Mm³ of wastewater is constituted of municipal/domestic wastewater³¹. The discharge of untreated industrial wastewater can be harmful to the ecosystem if this is done directly into rivers and streams, and can be harmful to the municipal wastewater treatment plants if it is discharged into the networks. Industrial effluents could affect the operation of municipal wastewater treatment plants as they can harm and inactivate microorganisms of biological treatment systems (refer to Box 6).

Box 6. Industrial wastewater

The 2013 Policy Paper and Action Plan for Industrial Waste Water Management in Lebanon³² has indicated that industrial wastewater treatment and reuse is hampered by the lack of experience and the associated costs of treatment, including high capital investments as well as high operation and maintenance costs. Management of industrial wastewater is closely linked to the management of water consumption, and both aspects can significantly reduce the production costs of the industries.

²⁸World Bank, 2011. Country Environmental Analysis.

²⁹MoEW, 2010. National Water Sector Strategy

³⁰World Bank, 2009. Water Sector: Public Expenditure Report

³¹MoEW, 2010. National Strategy for the Wastewater Sector

³²MoE, CDR, GIZ, 2013. Policy Paper & Action Plan for Industrial Waste Water Management in Lebanon

At the level of industrial air emissions

With regards to air emissions from the industrial sector, and although a national air quality programme is also lacking in Lebanon, air emissions estimations were made for 2005 at the level of 5 different classifications, namely: i. Energy industries, ii. Manufacturing industries and construction, iii. Transport, iv. Industrial processes³³.

For the industrial sector, this assessment has differentiated the “Manufacturing industries and construction” which show the emissions from electricity/energy production in the industrial sector (on-site production; i.e. private generators) from “Industrial processes” which show the emissions from the industrial process itself including mineral, chemical, metal production, etc. As such, the total emissions from the industrial sector can be derived from both classifications (“Manufacturing industries and construction” as well as “Industrial processes”) as consolidated in Table 3 below (refer to Box 7).

Table 3. Overall contribution of the industrial sector to air emissions

	CO ₂ (%)	NM VOC (%)	SO ₂ (%)	NO _x (%)
Manufacturing industries and construction	16%	0	22%	10%
Industrial processes	13%	17%	1%	0

Box 7. Industrial air emissions

The above assessment shows that the overall contribution of the industrial sector to air pollution (SO₂, NM VOC and NO_x) is mostly due to the combustion of fuel sources to produce electricity/energy on-site; the share of “Industrial processes” is mainly identified in terms of VOCs, while the remaining air pollution sources (SO₂ and NO_x emissions) are negligible. This confirms again that a direct link exists between industrial air emissions and energy production and the need to optimize energy production and consumption in the industrial sector to reduce air emissions and optimize industrial production as a whole.

At the level of industrial solid wastes

According to the SWEEPNET report in 2014, around **188,000 tons/year of industrial wastes are generated by industries; these constitute around 10% of the total Municipal Solid Waste Generation of 2.04 million tons (projected for 2013)**³⁴.

Industrial solid wastes can be classified into 2 main categories:

- non-hazardous wastes having the same characteristics as the municipal wastes (around 185,000 tons/year); and
- industrial wastes having the characteristics of hazardous wastes as referred to in the Basel convention (around 3,338 tons/year).

While these figures date from 2004³⁵, studies are currently underway by MoI and MoE to establish a more accurate and updated data of industrial solid waste generation trends in Lebanon (refer to Box 8).

³³ MoE, GEF, UNDP, 2011. Second National Communication to the UNFCCC

³⁴ SWEEPNET, 2014. Country report on the solid waste management in LEBANON

³⁵ FITCHNER, 2004. Request for Proposals prepared for CDR for the “Treatment and Disposal of Municipal Solid Waste in Lebanon”.

Box 8. Industrial solid wastes

Industrial and hazardous waste are being mixed with municipal solid waste for the exception of some industrial zones required by the municipalities to properly manage their own waste. From a general strategic point of view, industries could join efforts to create industrial waste treatment facilities which could be an action supported by the central government. However, the central government should play the lead role in monitoring, raising awareness and enforcing the implementation of pollution abatement measures at the level of industries.

3.3 Mapping of stakeholders involved in SCP in the Industrial Sector

The Scoping Review allowed a comprehensive mapping of the national stakeholders which are most concerned by the SCP Action Plan for the Industrial Sector and included Governmental institutions, private sector, NGOs, academia and research as well as international agencies. Annex 3 of the SCP Action Plan report provides a detailed analysis of the mandates of these institutions as well as the main policies, plans and actions which are currently in place at the level of these institutions and which are related to SCP in the industrial sector. This section provides a summary of the findings of the stakeholders which are most related to SCP in the industrial sector.

At the level of the Governmental institutions, the following institutions are described in Annex 3:

- The **Ministry of Industry (MoI)** including the research and technical centers associated to MoI such as the **Industrial Research Institute (IRI)**, the **Lebanese Standards Institution (LIBNOR)**, **Lebanese Cleaner Production Centre (LCPC)**. The report also described the on-going cooperation between MoI and **UNIDO** in the implementation of MEDTEST II and other projects funded through UNIDO.
- The **Ministry of Environment (MoE)** including several projects implemented by MoE and which are promoting sustainable consumption patterns, such as **Lebanon Environmental Pollution Abatement Project (LEPAP)**, **Support to Reform-Environmental Governance (StREG)**, **Low Emission Capacity Building Programme**, **Lebanon's HCFC Phase-out Management Plan (HPMP)**.
- **Ministry of Economy and Trade (MoET)** including the projects related to SCP under MoET, such as EU's **QUALEB**.
- **Ministry of Energy and Water (MOEW)** including the **Regional Water & Wastewater Establishments** and the **Litani River Authority** and the **Lebanese Center for Energy Conservation (LCEC)** all of which are under its mandate.
- **Ministry of Finance (MoF)** and the **Institut des Finances Basil Fuleihan (IoF)**.
- **Ministry of Agriculture (MoA)** including the **Lebanese Agricultural Research Institute (LARI)**.
- **Ministry of Interior and Municipalities** and the **municipalities** which are under its tutelage.
- **Ministry of Education and Higher Education (MEHE)** including the **Center for Educational Research and Development (CRDP)**.
- **Council for Development and Reconstruction (CDR)**
- **Investment Development Authority of Lebanon (IDAL)**
- **Banque du Liban (BdL)**

At the level of the Private sector and NGOs involved in SCP in the Industrial Sector, the following institutions are described in Annex 3:

- **Association of Lebanese Industrialists (ALI)** including the **Green Production Help Desk in Lebanon (GHD)**
- **Federation of Chambers of Commerce, Industry and Agriculture (FCCIA)**
- **Association of Banks in Lebanon (ABL)**
- **Kafalat**
- **Consumers Protection Association**
- **Lebanese Environment Forum (LEF)**
- **Lebanon Eco Movement**
- **Association of Forest Development and Conservation (AFDC)**
- **Ibrahim Abd El Al Foundation**

At the level of research and academic institutions involved in SCP in the Industrial Sector, in addition to the specialized research institutions already mentioned under the mandates of MoI (namely IRI) and MoA (namely LARI), the following institutions are described in Annex 3:

- **National Council for Scientific Research (CNRS-L)**
- **Lebanon's university system with one public university (the Lebanese University) and 28 private universities** including the universities with important research facilities such as Lebanese University, American University of Beirut, University of Saint Joseph, University of Balamand.

3.4 Other specific aspects related to SCP in the Industrial Sector

Other specific aspects related to the SCP Action Plan for the Industrial Sector concern two major issues which will be taken into account as part of the development process of the action plan and include the following:

3.4.1 Complementarity with the SWITCH-Med/MEDTEST II project in Lebanon

The SCP Action Plan for the Industrial Sector should be considered as a complementary initiative of the SWITCH-Med/MEDTEST II project which is implemented by the Ministry of Industry through UNIDO and LCPC (refer to Figure 8 below).

The MEDTEST II national baseline review aims primarily at identifying the economic and financial instruments that are already available in each country to support MEDTEST II demo industries to implement the TEST action plan. In addition, through this activity, there will be drafted a set of recommendations for further developing or harmonizing the policy instruments framework for resource efficiency and sustainable production in key industrial sectors. Coordination mechanisms at country level between the SCP-NAP and MEDTEST II baseline review are in place and properly functioning and will allow incorporating the outputs of these assessments in the SCP-NAPs, either in the process to develop them or during the annual or mid-term review of the SCP-NAP³⁶ (refer to Box 9).

Box 9. Synergies between the SCP Action Plan and the MEDTEST II in Lebanon³⁷

In Lebanon, the Ministry of Industry is implementing MEDTEST II in coordination with MoE and other concerned stakeholders. The Industrial Research Institute (IRI), in collaboration with the Lebanese Cleaner Production Centre (LCPC), is executing MEDTEST II under the responsibility of UNIDO. Synergies between the SCP Action Plan and the MEDTEST II project can include the following:

- The MEDTEST II project is focusing mainly on sustainable production, other stakeholders may focus on consumers,
- The MEDTEST II will suggest recommendations for developing or harmonizing the policy instruments framework for resource efficiency and sustainable production in industry.

As an indirect output of MEDTEST II, the following synergies can be sought:

- Experience from the MEDTEST II can be utilised in the adoption of Integrated Pollution Prevention and Control (IPCC) as a basis for developing new regulations for industry;
- Experience from implementation of MEDTEST II can be utilised in preparation of schemes at the level of the local authorities' SCP programmes to promote Resource Efficiency and Cleaner Production (RECP) and achieve cost reduction and environmental protection at the same time.

³⁶ Personal communication, 24/06/2015. Roberta De Palma, UNIDO; Carolina GONZALEZ-CASTRO, UNIDO; Luc Reuter, UNEP.

³⁷ Personal communication, 15/05/2015. Nada Sabra. UNIDO-Lebanon

Figure 8. About MEDTEST II³⁸

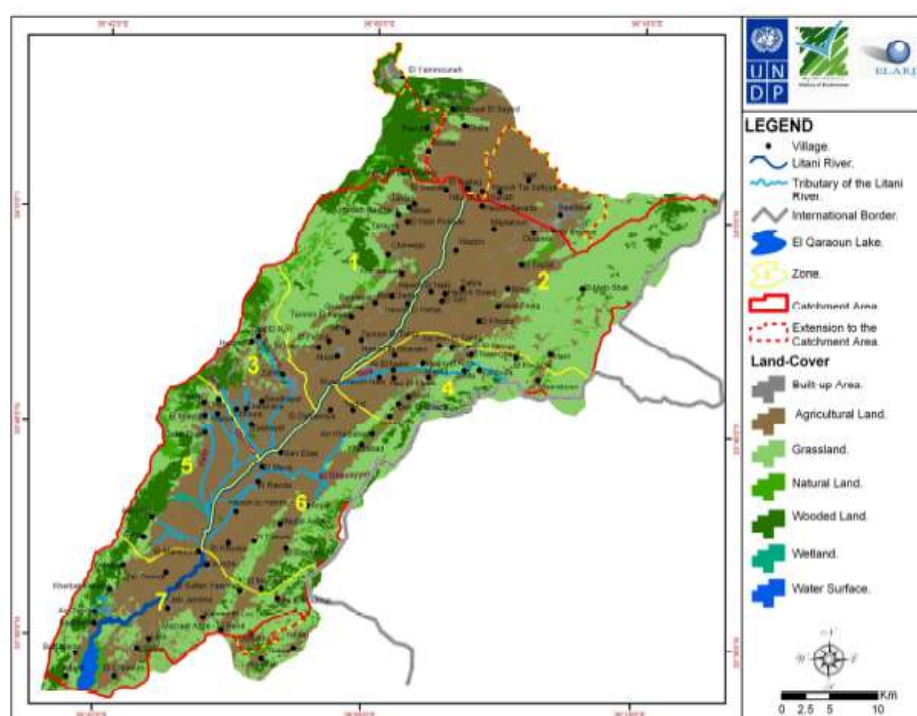


³⁸ www.unido.org

3.4.2 Special focus on the Litani Basin and Qaraoun Lake

The Litani River is the largest and the longest river in Lebanon; it flows 170 km in a south-western direction, passing through the Bekaa valley and the Qaraoun Lake before it reaches the Mediterranean Sea. Aware of the environmental importance of the Litani River basin and Qaraoun Lake, the Ministry of Environment commissioned a study to identify the pollution sources of the Upper Litani River catchment area and Qaraoun Lake and to recommend appropriate mitigation measures in the form of a Business Plan. The “Business Plan for Combating Pollution of the Qaraoun Lake”³⁹ constitutes an important baseline and roadmap for addressing sources of pressure affecting the Qaraoun Lake. It focused on the Upper Litani River catchment which extends over an area of 1,468 km² and comprises of 99 towns. The Upper Litani ends at the Qaraoun Dam, forming a reservoir with a storage capacity of around 220Mm³, of which 160Mm³ are used annually for irrigation and hydropower and 60Mm³ as base for dry season storage. The Business Plan organized the catchment area and its sub-catchments into ‘zones’, whereby a zone can consist of a part of a sub-catchment, or consist of one sub-catchment, or several sub-catchments (refer to Figure 9).

Figure 9. Extensions to the Upper Litani River Catchment Area and Zones’ Identification⁴⁰



The Business Plan indicated that the manufacturing industries in the Upper Litani River Catchment are concentrated in the industrial zones of Zahlé and Taanayel, which are situated in Zone 3. According to the Business Plan, 49% of the establishments are located in Zone 3 which is drained by the Berdawni and Chtoura Rivers, and 13% are located in Zone 6 which is drained by the Ghzayyel and Faregh Rivers. The distribution of industrial establishments across the remaining zones varies between 8-10%.

³⁹ MoE, UNDP. ELARD, 2011. Business Plan for Combating Pollution of the Qaraoun Lake

⁴⁰ MoE, UNDP. ELARD, 2011. Business Plan for Combating Pollution of the Qaraoun Lake

According to the business plan, the majority of the industries (86%) are considered as potentially threatening to surface water quality (as they produce large quantities of effluents and probably discharge their industrial effluents directly to the water streams through open channels or through pipes laid for short distances to reach the nearest flowing water stream or body), which confirms the threat from the industrial sector on the River Basin and the Qaraoun Lake.

The Business Plan has indicated that industrial pressure is particularly affecting water quality in the upper reaches of the Litani River where a suite of heavy metals in water, such as barium, chromium and zinc, were found, albeit in concentrations that were often below the guideline values. These heavy metals are accumulating in the sediments of the lower reaches and the Qaraoun Lake.

The Business Plan provided an indication of the total costs required (refer to Table 4) and which include mostly the infrastructure and auxiliary costs to be invested in engineering solutions to alleviate the pressures from solid waste, municipal wastewater and industrial wastewater.

Table 4. Estimated costs required for combating pollution of the Qaraoun Lake

Sector	Million US\$
Solid Waste	13.915
Municipal Wastewater	109.66
Industrial Wastewater	18.07
Agriculture	2.68
Total	144.33

For the industrial sector, the Business Plan called mainly for the adoption of (pre-)treatment technologies at industry-level and estimated that the investments in industrial wastewater treatment through (pre-) treatment of effluents are needed to alleviate pollution loads, the plan also highlighted that the industries needed incentives to comply with national regulations and invest in cleaner production as their opportunity costs of non-compliance are very limited.

Clearly, the potential for safeguarding the Litani River and Qaraoun Lake by adopting SCP approaches can constitutes an important opportunity for optimizing the role and responsibilities of the different stakeholders in such a challenging endeavour.

As such, the SCP Action Plan for the Industrial Sector includes specific actions focusing on the industrial priorities in line with the recommendations of the “Business Plan for Combating Pollution of the Qaraoun Lake”.

4 ASSESSMENT OF KEY POLICIES AND PLANS RELATED TO SCP IN THE INDUSTRIAL SECTOR

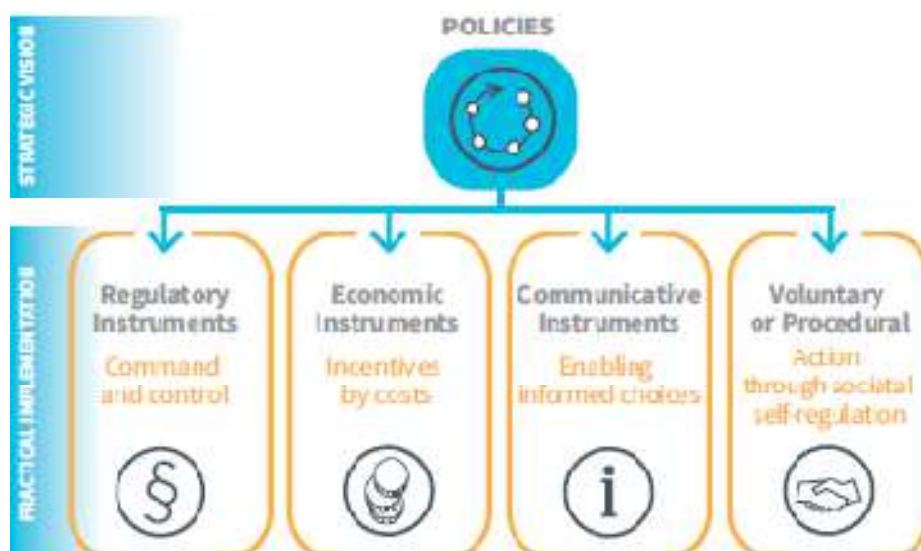
The Scoping Review has confirmed that Lebanon has a significant potential for adopting SCP principles in the industrial sector given the dynamic for export available at the level of the sector and the challenges facing the sector in optimizing its production processes. The Review has also confirmed the availability of several key actors already engaged in promoting SCP related policies and actions in the industrial sector in Lebanon.

This section provides an analysis of priority policies and plans related to SCP principles in the industrial sector and where follow up action can be identified as part of the SCP Action Plan development process building upon the on-going momentum in Lebanon.

The analysis is in line with the recognized SCP policy instruments that can be used in order to influence consumption and production patterns (see Figure 10) and which identified several policy levels which are instrumental in promoting a shift towards more SCP practices and include the following and which will be further detailed in the following sections:

- (i) Regulatory Instruments
- (ii) Economic Instruments
- (iii) Communicative Instruments
- (iv) Voluntary or Procedural Instruments

Figure 10. Type of SCP Policy Instruments⁴¹



⁴¹UNEP/SCP/RAC, 2014. SWITCH-Med SCP Policy Toolkit.

4.1 Assessment of regulatory instruments related to SCP in the Industrial Sector

At the legal level, several laws and regulations related to SCP in the industrial sector have been issued under MoI (refer to Table 5). The MoI is the lead authority for issuing industrial permits; its Service of Industrial Permitting – Department of Control is responsible for examining the permit period and the application of all terms and conditions related to the industrial permit including environmental requirements.

Table 5. Key laws and regulations related to SCP under the Ministry of Industry

Text	No	Date	Title
Decree	5243	04/05/2001	Classification of industrial establishments
Decree	8018	12/06/2002	Procedures and permitting requirements to establish/operate industrial establishments
Decree	7945	29/05/2002	Procedures to be followed in the Permitting Committee meetings and functions
Decree	9765	11/03/2003	Inspection procedures and penalties related to industrial establishments

On the other hand, the main legal basis of MoE is Law 444 of 2002, the Environmental Protection Act which set basic principles and general provisions to regulate environmental protection and management, and established the basis for the “Polluter Pays Principle”. As called upon by the Environmental Protection Act; several regulations were enacted by MoE in cooperation with concerned national stakeholders and which are closely related to promoting SCP in the industrial sector, which include:

- Decree 2275 of 2009 concerning the MoE organizational structure which states in point 6 of article 25 that MoE through the Unit of Complementary Environmental Systems will work to adopt cleaner production and resource efficient technologies in the productive sectors;
- Decree 8471 of 2012 concerning Environmental compliance of establishments which will set mandatory deadlines for industries after 2015;
- Decree 8633 of 2012 concerning Fundamentals of Environmental Impact Assessment.

The MoET has also promoted several legal frameworks related to SCP, including the Consumer Protection Law in 2011. A draft Competition Law is still being pursued by the MoET.

The MoEW also plays an important role in promoting SCP especially with regards to water and wastewater management and energy consumption. MOEW developed a National Wastewater Sector Strategy in 2010 setting the sector’s targets including a target for include the **“Pre-treatment of all industrial wastewater by 2020”**. Under Wastewater Sector Strategy, MoEW has set the targets for 2011-2020 which are related to the industrial sector include the following:

- Increasing wastewater collection from 60 to 80 percent in 2015;
- Increasing treatment from the current 8 percent to 95 percent in 2020;
- Pre-treatment of all industrial wastewater by 2020;
- Increase the reuse of treated effluent from the current 0% to 20% in 2015, and 50% in 2020.

As such, it can be considered that the current legal framework, based on the following regulations: Decree 8018/2002 related to Procedures and permitting requirements to establish/operate industrial establishments, Decree 8471 of 2012 concerning Environmental compliance, and the National Wastewater Sector Strategy of 2010, provide an adequate basis for industrial branch specific programs with specific objectives and targets in the area of water efficiency and pollution prevention at source. This can ensure that in future, enterprises will design their waste water treatment facilities based on existing parameters and lead to optimised investments through RECP.

4.2 Assessment of economic instruments related to SCP in the Industrial Sector

MoF plays an important role in supporting on-going national efforts initiated by MoE and other concerned stakeholders related to environmental fiscal reform in Lebanon.

Under the auspices of the MoF, the IoF, with the support of UNEP and UNDP, and in coordination with concerned national institutions, prepared a “**Review of the Public Procurement Legal Framework in Lebanon**” as well as a “**Sustainable Public Procurement (SPP) Action Plan**” (refer to Box 10) in 2011, in an effort to seek the possibilities for incorporating environmental and social sustainability criteria in the Lebanese Public Procurement.

Box 10. The Sustainable Public Procurement Action Plan for Lebanon (2011)

According to the Sustainable Public Procurement (SPP) Action Plan and recent national studies, the impact of applying SPP would be considerably positive on Sustainable Consumption and Production (SCP) in Lebanon, given that public procurement spending amounts to 13% of public expenditures and 4% of the Gross Domestic Product (GDP) at the central level. As such, modernization of public procurement policies and practices to meet international new trends and good practices such as SPP, green procurement and e-procurement, could have a transformative effect on the local market and enhance good governance.

In line with its contribution to reforming public procurement through capacity development, awareness, knowledge creation, and facilitation of dialogue and in its capacity of National Focal Point of the Marrakech Task Force (MTF) approach on SPP led by UNEP, the Institut des Finances Basil Fuleihan (IoF) developed a SPP Action Plan for Lebanon. The Action Plan was the output of an assessment process undertaken in three phases:

- i. A Status assessment on the national status of public procurement in Lebanon.
- ii. A thorough Review of the Lebanese legal framework, screening the possibilities for incorporating environmental and social sustainability criteria into public procurement.
- iii. A detailed Market readiness analysis, based on a survey of businesses providing the six priority products for Lebanon⁴² which were identified using the prioritization method of the MTF approach on SPP, defining related actions to be implemented by public agencies, so that Lebanon could concretely move towards more sustainable production and consumption patterns.

The three-year action plan set out the objectives, measures and actions to be adopted and implemented by the Lebanese Government, in cooperation with concerned stakeholders and which were grouped under five themes: Capacity Building, Policy, Strategy and Communication, Procurement Process, Market Engagement, and Monitoring and Evaluation.

⁴²Papers, IT (printers and toners), detergents, pesticides, lighting and water taps / flushing systems

The design of the SPP action plan was the fruit of sound collaboration and active participation of national stakeholders. A Steering Committee supervised and guided the overall process, representing, in addition to the IoF, the Ministry of Finance, the Ministry of Social Affairs, the Ministry of Environment, the UNDP Office in Beirut, the Chamber of Commerce and Industry, the Council for Development and Reconstruction, the Central Bank of Lebanon, LIBNOR, OMSAR, the Lebanese Center for Energy Conservation, and the Agence Universitaire de la Francophonie.

The implementation of the SPP Action Plan would help promoting efficiency and sustainability in the production, distribution, and consumption of products and services procured by public entities, with positive spill over effects for the local market. It would also encourage transparency and fair competition among government suppliers, and foster environment protection and the responsible use of energy and water resources. This relies on public leadership at the legislative and executive levels, including the role of procuring entities, as well as stakeholders from the business sector and civil society.

More recently, the MoE has initiated the Support to Reform-Environmental Governance (StREG) programme, financed by the European Union, which is supporting, among others, the development of relevant Environmental Fiscal Instruments (EFI) including financial incentives for green industries (refer to Box 11 below).

Box 11. Introducing Environmental Fiscal Instruments (EFIs) to support industrial pollution control⁴³.

Under the StREG programme, an initial assessment of the tools which offer potential for application in Lebanon was conducted and identified the need for more detailed analyses in order to determine how they should actually be implemented and which should focus on:

- How to target substantial subsidies presumably made available through foreign donor support, to the firms that need them the most, and how to ensure that they do not provide windfalls to firms that do not need them.
- How to design tax subsidies available to encourage all firms to reduce pollution
- The potential for emissions charges to provide revenues in the future to cover operating costs of the government's environmental management systems.
- If considered of interest, the potential for growth of new "green" sectors that will meet industry's new needs for pollution abatement.

The Scoping review Report has indicated on-going initiatives related to the economic instruments at the level of various national institutions which benefit the industrial sector as a whole and support the promotion of SCP in the industrial sector in specific; these include the following:

- (i) Banque du Liban (BdL) launched in 2010 its **green finance initiative through the circular 236**. Through this circular, banks are exempted from part of the reserve requirement if the bank provides businesses lower interest rate from those applied on commercial rates. When it started in 2010, the BDL's circular has provided interest rates close to 0% for energy efficiency activities and 2.5% to other environmental activities. In 2014, BDL has issued its yearly circular (Intermediate Circular 382) and sustained its **incentives to most environmental activities, including pollution abatement activities for industrial establishments**.

⁴³ www.moe.gov.lb

- (ii) The Investment Development Authority of Lebanon (IDAL), which is the national investment promotion agency established in 1994 with the aim of promoting Lebanon as a key investment destination, and attracting, facilitating and retaining investments in the country. IDAL has identified a set of priority sectors that showed the most promising opportunities in terms of their investment potential and impact on socio-economic growth which the industrial sector. Multiple financial facilities are provided by the government through IDAL and include the following:
 - 50% exemption on tariff duties at export;
 - 2% custom duties for machinery, equipment, spare parts and building material imported for the setting up of new industrial firms;
 - 0% custom duties for textiles, semi-manufactured goods and raw materials
 - Fiscal exemptions granted by IDAL which can run up to 100% exemptions on corporate income tax for a period up to 10 years for industrial companies;
 - Signing of multiple bilateral and multilateral agreements which have had a positive impact on the improved access to markets for Lebanese exports in external markets;
- (iii) Kafalat is a Lebanese financial company with a public concern that **assists SMEs to access commercial bank funding**. Kafalat helps SMEs by providing loan guarantees based on business plans / feasibility studies that show the viability of the proposed business activity. It processes guarantee applications for loans that are to be provided by Lebanese banks to SMEs operating throughout Lebanon under the Kafalat programme. **Kafalat targets SMEs and innovative start ups that belong to different economic sectors including the industrial sector**. Kafalat is owned by the National Institute for the Guarantee of Deposits (for 75%) and fifty Lebanese banks (for 25%).

4.3 Assessment of communication tools related to SCP in the Industrial Sector

Several institutions in Lebanon have developed programmes and initiatives addressing the SCP concepts at the level of both the production as well as consumption aspects although these are directly oriented towards promoting SCP in the industrial sector. While the production aspects are covered by several technical assistance programme in Lebanon, the consumers' engagement in SCP through targeted communication tools and other knowledge generation platforms remain limited and are mainly pursued in an ad-hoc basis by civil society groups as well as academia and research, in addition to some Governmental institutions such as the Ministry of Education and Higher Education (MEHE).

MEHE is responsible for schools, universities and vocational training in Lebanon, and as it also hosts the Educational Center for Research and Development. MEHE plays an important role in promoting environmental education and awareness programmes at the level of schools and has developed several programmes in this field.

The Scoping Review has indicated that several NGOs are very active in Lebanon in developing and implementing programmes related to SCP and include:

- **The Consumer Protection Association (Consumers Lebanon)** defends consumer rights in Lebanon since 2000 and has initiated extensive action in support of modern and efficient consumer protection legislation in Lebanon.
- **The Lebanese Environment Forum (LEF)** comprises currently 46 environmental non-governmental organizations.
- **The Lebanon Eco Movement** is an association of over 70 NGOs in Lebanon gathered around the mission to “Continue to struggle to reach a country with a sound and sustainable environment”.
- **The Association of Forest Development and Conservation (AFDC)** is a pioneer in environmental education and awareness in Lebanon and has developed and implemented an extensive programme which can greatly benefit the development and implementation of the SCP action plan for the industrial sector
- **The Ibrahim Abd El Al Foundation** is actively working to raise awareness and advocacy on water resources and promotes the principles of Integrated Water Resources Management and focused on the Litani River and Qaraoun Lake and can play an important role in the promotion of SCP approaches in the industrial sector.

In terms of the engagement of academic and research centers in SCP, the Scoping Review has highlighted the important role of research institutions in promoting research in the fields of SCP at the level of the private sector and at the level of policy makers in view of highlighting the benefits of adopting SCP approaches. The main research institutions in Lebanon which can play such a role include the following:

- The universities with important research facilities and which can significantly contribute to promoting SCP in the industrial sector include the Lebanese University, the American University of Beirut, the University of Saint Joseph, and University of Balamand.
- The National Council for Scientific Research (CNRS-L) plays a major role in defining the National Science Policy and formulates proposals and suggestions to the government and carries out surveys and inventories of on-going research activities in private and public institutions in the country.

Despite limited communication initiatives focused on SCP, a rapid survey was conducted in August 2015 as part of the preparation of the SCP Action Plan and confirms the readiness of the Lebanese consumer to engage in SCP approaches in the industrial sector.

The survey was conducted through a web-based questionnaire disseminated through the social media and requested rapid response on 4 main questions included Table 6 below. Although the total number of respondents was limited to 200 which cannot be considered as a representative sample, this initial survey confirms the willingness of the Lebanese consumer to engage in SCP approaches. While only 50% of the respondents were knowledgeable of SCP practices, the majority of respondents were willing to engage in SCP models, which confirms the importance of strengthening communication efforts to promote the adoption of SCP practices at the consumer level.

Table 6. Results of the rapid survey on consumers' perception of SCP in the industrial sector

Question 1.	Are you aware of the availability of environmentally friendly products in the Lebanese market?	
Answer 1.	Yes: 53%	No: 47%
Question 2.	Are you interested in purchasing an environmentally friendly product?	
Answer 2.	Yes: 96%	No: 4%
Question 3.	Have you recently purchased any environmentally friendly product? If YES, please specify.	
Answer 3.	Food products, water-based paints, recycled papers, energy-efficient lamps, solar water-heaters, organic food, recycled plastic and paper, recycled glass bottles, CFC-free products, photovoltaic panels, recycled tissues and papers.	
Question 4.	Are you ready to pay slightly more for environmentally friendly products?	
Answer 4.	Yes: 86%;	No: 14%

4.4 Assessment of voluntary initiatives related to SCP in the Industrial Sector

The Scoping Review indicated that various on-going programmes and projects in place in Lebanon supporting the adoption of resources efficiency and SCP as a whole and which are providing technical assistance for the industries. These include:

- **Lebanese Cleaner Production Centre (LCPC)**
- **Lebanese Center for Energy Conservation (LCEC)**
- **Green Production Help Desk (GPHD)**
- **Lebanon Environment Pollution Abatement Project (LEPAP)**
- **Switch-MED/MEDTEST II Project in Lebanon**

Another important aspect supporting voluntary initiatives related to SCP include the different on-going efforts for promoting standardization, labelling and certification in Lebanon (refer to Box 12 for a list of used eco-labels in Lebanon) and which include the following:

- **LIBNOR** is the sole authority in Lebanon allowed to issue, publish and amend standards and is a full member of the International Organization for Standardization (ISO). LIBNOR holds Lebanese functions according to international and European organizations.
- **IRI** is the first accredited body in Lebanon (since 2004) and the only organization on national level to cover a wide scope for both testing and calibration (more than 350 accredited methods). IRI offers certification activities that cover system, product and certification of persons.
- **FCCIA** has the exclusive rights for the issuance of "Certificates of Origin" and the "Authentication of Invoices and Commercial Documents".
- **MoE** has established a "Compliance Certificate" part of the Compliance decree which is issued to industries based on an Environmental Audit.

- **QUALEB** has supported to align Lebanese practices to match EU practices in the fields of Standardization, Testing, Certification, Inspection, and Accreditation of Technical Regulations.
- **LCEC** identified the standards for the 5 household appliances and cooperated with LIBNOR to adopt them officially on a voluntary basis. The choice of the standards was in line with the government's policies to conform to International and European norms and standards. **LCEC's initiative for the energy efficiency standards and labels in Lebanon** identified the standards for 5 most used household appliances in Lebanon and cooperated with LIBNOR for their adoption officially on a voluntary basis. The adopted standards were in line with the government's policies to conform to International and European norms and standards and in coherence to similar cultures. This was done following extensive analysis based on a research on energy-saving technology in household items in the market and household appliances that are available in almost every home. The study was done in 36 outlets and 6000 randomly selected households. **The five house hold appliances were the following:**
 - ✓ **Solar Water Heaters**
 - ✓ **Compact Fluorescent Lamps**
 - ✓ **Refrigerators**
 - ✓ **AC split units**
 - ✓ **Electric/Gas water heaters.**

Box 12. Ecolabels used in Lebanon⁴⁴

According to the Ecolabel Index, the largest global directory of ecolabels, currently tracking [459 ecolabels](http://www.ecolabelindex.com) in 197 countries, **ecolabels used in Lebanon include the following** (in August 2015 and in Alphabetical order):



⁴⁴ <http://www.ecolabelindex.com>

5 COMPONENTS OF THE SCP ACTION PLAN FOR THE INDUSTRIAL SECTOR

The proposed SCP Action Plan for the Industrial Sector in Lebanon is based on the Draft SCP Action Plan for the Mediterranean⁴⁵ which has been developed under the regional component of the SWITCH-Med programme and which has been subject to extensive discussions at the regional to ensure its alignment with the Mediterranean context.

While this approach aims at building upon the knowledge and experience generated at the regional level, the national SCP Action Plan for the Industrial Sector in Lebanon will aim at responding to country specific needs and opportunities. It should also be noted that the SCP Action Plan includes as an integral part specific activities aiming at addressing the SCP needs in the Litani Basin and Qaraoun Lake.

As such, the SCP Action Plan for the Industrial Sector in Lebanon has identified **3 Operational Objectives** which are the following:

- ✓ **Operational Objective 1. Adopt Best Available Techniques to promote SCP in the industrial sector**
- ✓ **Operational Objective 2. Introduce SCP approaches related to the industrial sector in the policy and institutional frameworks**
- ✓ **Operational Objective 3. Educate and raise awareness of consumers on SCP in the industrial sector**

At the level of each Operational Objective, the SCP Action Plan has provided a set of Outputs and Activities and identified the lead stakeholders as well as the key stakeholders at the level of each activity. The proposed SCP Action Plan has been formulated with a projected duration of 10 years (2016-2025).

The sections below provide more detailed analysis of the proposed outputs and activities at the level of each operational objective, while **Annex 1** of the Action Plan provides the proposed activities, lead stakeholders and key stakeholders at the level of each output.

The proposed SCP Action Plan was also used as a basis for the development of the **Short-Term SCP Action Plan for 3 years (2016-2018)** with more specific interventions, based on the long-term approach (including **Operational Objectives and Outputs**) identified in the Action Plan. However, the Short-Term SCP Action Plan has focused on priority activities to be implemented in the short-term and with a more limited scope of action. The Short-Term SCP Action Plan provided also an estimation of the minimum budget requirements for these activities in order to implement the Short-Term SCP Action Plan. The Short-Term SCP Action Plan is provided in **Annex 2 of the report**.

The SCP action plan can be considered as an evolving framework document which can be used by the different stakeholders for the implementation of specific activity or sets of activities identified under the action plan.

⁴⁵ UNEP/MAP, 2015. Second Draft of the SCP Action Plan for the Mediterranean. UNEP (DEPI)/MED WG.405/3. Unpublished

With regards to the implementation arrangements of the SCP Action, institutional responsibilities were indicated based on the findings of the stakeholders' mapping as part of the scoping review and available technical and financial resources already in place in Lebanon closely related to SCP in the industrial sector.

As such, it is proposed to sustain the operation of the **SCP Working Group** which has been established as part of the SCP Action Plan development process as an operational modality for the implementation of the SCP Action Plan. The **SCP Working Group** will ensure continuous coordination and technical guidance for the SCP action plan implementation process and its membership includes the following institutions:

- ✓ Ministry of Environment,
- ✓ Ministry of Industry,
- ✓ Ministry of Finance/Institut des Finances Basil Fuleihan (MoF/loF),
- ✓ Ministry of Economy and Trade (MoET),
- ✓ Association of Lebanese Industrialists, Federation of Chambers of Commerce, Industry and Agriculture (FCCIA), and
- ✓ UNIDO.

5.1 Adopt Best Available Techniques to promote SCP in the industrial sector

The Operational Objective 1 aims at promoting sustainability-driven innovation and knowledge and the integration of Best Available Techniques (BATs) which include both best available technologies and best practices through the entire value chain of goods production, and to extend it to the upstream and downstream flows of resources and waste, paying particular attention to the life-cycle of manufactured goods⁴⁶. The proposed actions and activities to achieve Operational Objective 1 include:

- Promote and use BATs including resource efficient and cleaner production, renewable energy and other tools leading to improvement of environmental performance and human protection - in the manufacturing of goods and the provision of alternative services.
- Promote and use of BATs to implement the waste management hierarchy and adopt a circular economy approach. This should consider toxics elimination, product durability, reparability and dematerialization and should include the encouragement of green sector value chains by the establishment of industrial recycling and remanufacturing networks connecting companies generating wastes with those recycling it.
- Promote, use and develop tools such as eco-design, Life Cycle Management, risk assessment of chemicals, substitution of hazardous chemicals, and Cradle to Cradle to facilitate the sustainable design and production of manufactured goods. This should include the formulation and promotion of a related research and development agenda and the compilation of best practice cases.

⁴⁶ The use BATs' definition here differs from that utilised within the IPPC approach which does not cover life cycle production. The use of BATs is considered here with a broader perspective, including the concept of innovation and eco-innovation promoted by UNEP.

- Create green businesses and jobs in sustainable goods manufacturing and recycling/refurbishment and alternative services such as switching from a product ownership to a Service Systems and lease based economy and other innovative business approaches.

This Operational Objective builds upon the significant shortage in natural resources at the national level, specifically with regards to energy, water, solid wastes, air emissions and transportation. Examples of such shortages at the industrial level are provided in Boxes 13 and 14 below.

Box 13. Limited water resources for industries⁴⁷ Industries suffer from limited availability of water resources for their manufacturing processes as well as high and inefficient water consumption practices. According to its implementation decrees, regional Water and Wastewater Establishments (WWE) can supply industries 3 m³ of water per day, for domestic use. Industries are very large water consumers and therefore rely on other sources to meet their needs. As long as the WWE lack water budgeting and planning, industries will continue to rely on (illegal) tapping of surface and groundwater to meet their growing needs. It is important that regional WWEs allocate water for industries as part of their annual water budget, and subject to water availability. The solution would be also to develop tools to limit irresponsible and overconsumption of water.	Box 14. High energy bills of industries⁴⁸ According to the SOER, while the GDP share of the industrial sector in Lebanon in 2007 was around 9% it consumed around 30 percent of overall electricity production. The energy audits commissioned by the Lebanese Center for Energy Conservation (LCEC) of 17 industrial plants between 2007 and 2009 have indicated that 61 percent of their energy expenses were related to self-generation while electricity bills make up 77 percent of their energy expenditure. The high rate of private electricity generation partially explains the inefficiencies in the industrial sector considering that small generation plants are not very efficient, many being old and/or not optimally operated not to mention the low fuel quality.
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This Operational Objective also builds upon the various on-going programmes and projects in place in Lebanon supporting the adoption of resources efficiency and SCP as a whole and which are providing technical assistance for the industries. These include:

- **Lebanese Center for Energy Conservation (LCEC)**
- **Lebanese Cleaner Production Centre (LCPC)**
- **Green Production Help Desk (GPHD)**
- **Lebanon Environment Pollution Abatement Project (LEPAP)**
- **Switch-MED/MEDTEST II Project**

This Operational Objective follows up on support initiated by various international donors, specifically with regards to the following initiatives:

- the ILO/UNDP **Assessment of Green Jobs in Lebanon** which identified an important potential for green jobs in Lebanon and recommended conducting an in-depth assessment of the industrial sector;

⁴⁷ MoE, CDR, GIZ, 2013. Policy Paper & Action Plan for Industrial Waste Water Management in Lebanon

⁴⁸ MoE, UNDP, ECODIT, 2010. State of the Environment Report in Lebanon

- the National Green Export Reviews (NGERs) through UNCTAD based on its analytical “Green Product Space” approach to validate the growth potential of the industrial sector as well as to identify the full set of green sectors so that (additional) promising green sectors can be selected as the focus of the NGER, and which will identify promising green product value chains with high export potential.

Finally, under this Operational objective, it is also proposed to explore schemes of Local Authority Programmes (LAPs) promoting SCP like the ECOPROFIT Model (best practice in the field) led by municipalities and which bring together the local stakeholders (local government authorities, industry, service providers...) in coordination with central authorities to promote SCP and achieve cost reduction and environmental protection at the same time (refer to www.ecoprofit.com and explore the Vienna Eco Business Plan which follows the eco-profit model and focuses on promotion of complex SCP at municipal level). SCP/LAPs could be more modest in Lebanon, however, powerful in focusing on local problems and delivering real results especially in conjunction with the unique financing mechanisms available in the country.

As such, the priority Outputs at the level of “Operational Objective 1. Adopt Best Available Techniques to promote SCP in the industrial sector” are the following:

- 1.1 Continue the transfer of SCP technologies to industries through demonstration activities**
- 1.2 Upscale transfer of SCP technologies within industries.**
- 1.3 Identify value chains and green jobs based on the local market’s supply and demand of SCP services in the industrial sector**
- 1.4 Initiate a Local Authority Programme (LAP) on SCP to be implemented at municipal/regional level in coordination with central authorities**

The specific Activities at the level of these outputs are presented in Annex 1 of the Action Plan.

5.2 Introduce SCP approaches in the policy and institutional frameworks

The Operational Objective 2 aims at developing integrated policy and legal framework to promote sustainable consumption, production and recovery in the industrial sector with the aim to move towards a circular economy.

The proposed actions and activities to achieve Operational Objective 2 include:

- Develop an institutional framework to encourage integrated national and local decision making through the involvement, collaboration and coordination of relevant stakeholders including governmental bodies, industries and civil society for improved integrated policy making (national and local).
- Develop the regulatory framework called upon in the Environmental Law 444/2002 including the Pollution Pays Principle and fiscal instruments for adopting SCP
- Create an effective national and local policy and regulatory framework including incentives for the adoption of sustainable production processes based on Resource Efficiency and Cleaner

Production (RECP) as well as for the reuse, repair, recycling and recovery of manufactured goods based on life cycle techniques and the promotion of extended producer responsibility.

- Adopt Integrated Pollution Prevention and Control (IPPC) as a basis for developing new environmental regulations for industry. IPPC promotes preventive measures like RECP as this represents a win-win strategy that will facilitate pollution control on one hand and enhance industry competitiveness on the other (refer the Directive 2008/1/EC of the EU issued in January 2008)
- Consider developing a certification scheme for the providers of sustainable production services to industry
- Establish and promote eco-label schemes for manufactured goods and alternatives services in the country; promote related activities like voluntary agreements between retailers and public authorities to promote sustainable products.
- Promote full cost accounting and market base instruments (MBI) which favour sustainable production, sustainable goods and alternative services taking account of resource efficient and cleaner production, renewable energy use, eco-innovation; and support of green entrepreneurs and green jobs. This would also include financial and tax based mechanisms to encourage relative sustainable goods production and practices, and discourage unsustainable goods consumption.
- Pursue the implementation of the recommendations of Sustainable Public Procurement Action Plan which was developed in 2011 with priority focus on key aspects related to the promotion of SCP policies in the industrial sector.
- Promote the creation of additional industrial zones and improve management of existing ones as per the National Land Use Master Plan (NLUMP), with special focus on the Litani Basin and Qaraoun Lake.

Under this Operational Objective, many initiatives are already in place in Lebanon specifically with regards to availability of an enabling **financial policy for SCP triggered by BDL** and supported by various national and international agencies such as Kafalat. This Operational Objective is also building upon on-going support for providing **financial mechanisms to the industrial sector to promote SCP through IDAL and Ministry of Environment**.

One of main challenge for the Lebanese industries is the **potential to grow its export of manufactured goods, especially for goods which have incurred additional costs in a way to adhere with environmental regulations in Lebanon as well as in the export countries**. As such Lebanon not only needs to signs additional trade agreements or double taxation treaties to open the market to its industrial sector, however, in order to improve its exports, the industrial sector should adhere and confirm the quality of its goods. The main focus of this Operational Objective can address the **SCP legal and regulatory requirements and IPPC as part of current trade agreements with Lebanon in view of confirming the quality and sophisticated added-value of the Lebanese goods**. As several initiatives are in place (refer to Box 15 below), a coordinated effort for streamlining and simplifying exiting procedures and establishing new systems might be Necessary.

Box 15. National institutions engaged in standardization, labelling and certification

Various national institutions are already engaged in standardization, labelling and certification of industrial products and include the following:

- LIBNOR is the sole authority in Lebanon allowed to issue, publish and amend standards and is a full member of the International Organization for Standardization (ISO).
- IRI offers certification activities that cover system, product and certification of persons.
- The Chambers of Commerce, Industry and Agriculture are responsible for the issuance of “Certificates of Origin” and “Authentication of Invoices and Commercial Documents”, which are further processed by the concerned ministries.
- MoE has established a “Compliance Certificate” part of the Compliance decree which is issued to industries based on an Environmental Audit.
- LCEC has established standards in line with the government's policies as well as International and European norms and standards.
- QUALEB has supported to align Lebanese practices to match EU practices in the fields of Standardization, Testing, Certification, Inspection, and Accreditation of Technical Regulations.

Another important entry point for SCP in the industrial sector in Lebanon can be through the engagement of the public sector through Sustainable Public Procurement. According to Sustainable Public Procurement Action Plan for Lebanon which was prepared in 2011 by the IoF with the support of UNEP and UNDP, the impact of applying SPP will be considerable given that public procurement spending amounts to as much as 12.08% of the Gross Domestic Product (GDP) in Lebanon. Changes in public procurement targets and practices can therefore have a transformative effect on the local market, as well as setting an example of good governance. Using the prioritization method of the Marrakech Task Force on SPP, priority products were assessed under the SPP action plan and included products where action can be taken immediately which are the following: paper, printers, toners, detergents, and pesticides. The action plan also covered products associated with longer term projects such lighting, water taps and flushing systems. The readiness of the Lebanese market was assessed through a survey of businesses which provide these products, and a review of national initiatives. Finally, this Operational Objective will aim at promoting the creation of additional industrial zones in Lebanon and improving the management of existing ones as per the National Land Use Master Plan (NLUMP). Special focus will be given to the Litani Basin and Qaraoun Lake in view of ensuring a coherent approach with the SCP Action Plan and national efforts in this direction.

As such, the priority Outputs at the level of “Operational Objective 2. Introduce SCP approaches related to the industrial sector in the policy and institutional frameworks” are the following:

- 2.1. Establish an institutional mechanism for implementing SCP at the national level including the follow up on needed legal framework to ensure the adoption of SCP approach**
- 2.2. Develop priority regulations for industry in line with the national and international regulations specifically the Environment Law 444/2002 and the IPPC (EC/2008)**
- 2.3. Harmonize and promote certification schemes and eco-labels for the providers and consumers of industrial sector in line with SCP approach**
- 2.4. Implement the priority recommendations of Sustainable Public Procurement Action Plan related to the industrial sector**
- 2.5. Create additional industrial zones and improve management of existing ones as per NLUMP.**

The specific Activities at the level of these outputs are presented in Annex 1 of the Action Plan.

5.3 Educate and raise awareness of consumers on SCP in the industrial sector

The Operational Objective 3 aims at educating and raising awareness of consumers and other stakeholders and supporting the development of market structures, increasing the visibility and market share of sustainably manufactured, used and disposed-of goods and alternative services.

The proposed actions and activities to achieve Operational Objective 3 include:

- Compile best practices for educating and informing stakeholders (consumers, policy and decision makers, producers, retailers, academia) about sustainable production and consumption of manufactured goods and alternative services including information relating to ecolabels, local/regional products, resource efficient and cleaner production, waste hierarchy, ecological footprint accounting, Life Cycle Assessment, external cost, corporate sustainability reporting and other approaches.
- Improve education on sustainable production and consumption of manufactured goods and alternative services by reviewing and updating primary, secondary, technical/vocational and tertiary educational curricula in relation to issues such as resource efficient and cleaner production, engineering processes, design, marketing, advertising, economy, chemistry, health, education, social and environmental impacts of products and services.
- Demonstrate and publicize the economic, environmental and social benefits of sustainably manufactured goods and alternative services using appropriate media outlets. Particular emphasis should be given to promoting the economic and business case for individual categories of manufactured goods (or alternative service provision), emphasizing the benefits to consumers, SCP actions by industries as part of their corporate social responsibility, the private sector and the environment.

Several governmental institutions in Lebanon play an important role at this level and include the Consumer Protection Directorate of the MoET for example which launched communication campaigns, a hotline, an electronic application as well as conferences at the level of schools and universities.

Moreover, Lebanon has diverse and dynamic NGOs and civil society which is heavily involved in the environmental field **and it can be greatly support efforts to engage the Lebanese consumer in SCP practices and initiatives, especially with regards to SCP in the industrial sector.**

Many advocacy and awareness campaigns have been launched in Lebanon confirming the potential for the industrial sector to market its green products at the level of the consumer (refer to Box 16 below). The main stakeholders which can be involved in communication activities related to SCP include the following:

- The Consumer Protection Association (Consumers Lebanon) defends consumer rights in Lebanon since 2000;
- The Lebanese Environment Forum (LEF) was established in 1992 and comprises currently 46 environmental non-governmental organizations striving for the protection of the environment;
- The Lebanon Eco Movement is an association of over 70 NGOs in Lebanon gathered around the mission to “Continue to struggle to reach a country with a sound and sustainable environment”;

- The Association of Forest Development and Conservation (AFDC) was established in 1993 and has been a pioneer in environmental education and awareness in Lebanon;
- The Ibrahim Abd El Al Foundation was founded in 1991 and is actively working to raise awareness and advocacy on water resources. The Foundation has implemented various campaigns in the field of water management and focused on the Litani River and Qaraoun Lake.

Box 16. Examples of awareness campaigns which included SCP in the industrial sector

The following campaigns have engaged the industrial sector in communication and training activities and prove the potential for promoting SCP at the level of the consumers in Lebanon, these include the following:

- CSR Lebanon Forum, which is organized annually (<http://www.csrlebanon.com/4th-forum-page.html>) and CSR ConNCeT
- Beirut Energy Forum, which was held in 2014, and included a special session on industry and energy)
- FCCIA has developed extensive activities related to food safety in cooperation with several Governmental including the MoET, Ministry of Industry, Ministry of Tourism, Ministry of Public Health, a training programme on food safety has been implemented across Lebanon, and can be similarly replicated to SCP aspects.

At the level of the universities, the students can be engaged not only in awareness raising campaigns but also partnerships between the industrial sector and the universities can focus on solving problems related to optimization in the processes, production, final products, and internal environment of the industry, health risk assessment, etc... Research in these fields is crucial to the industry, and this may be linked directly to recommend partnerships between research in universities and research and development departments in the industries⁴⁹ (refer to Box 17).

Box 17. Strengthening the linkages between research and industry

Although not all universities in Lebanon have a Science and Technology curriculum or research, universities can play a major role in responding to research and innovation needs of the industrial sector. According to the survey conducted by the CNRS-L⁵⁰, the research-industry link is effectively broken and there is low reliance of industry on university research. Similarly, research conducted in the private sector in Lebanon is also very limited⁵¹.

As such, the priority Outputs at the level of “Operational Objective 3. Educate and raise awareness of consumers on SCP in the industrial sector” are the following:

3.1. Develop the appropriate educational and awareness tools for promoting SCP approaches in the industrial sector at the level of the consumers

3.2. Strengthen the linkages between research and industry in the field of SCP

The specific Activities at the level of these outputs are presented in Annex 1 of the Action Plan.

⁴⁹ Personal communication. Professor Antoine El Samran, Géosciences de l'Environnement, Université Libanaise. 8 May 2015.

⁵⁰ NCSR, World Bank, 2014. Innovation Survey within the Industrial Sector in Lebanon.

⁵¹ Rafik Hariri University, ESCWA, 2014. Revisiting the purpose of scientific research to better impact development in the Arab World.

A N N E X E S

ANNEX 1. SCP ACTION PLAN FOR THE INDUSTRIAL SECTOR IN LEBANON (2016-2025)

Operational Objective 1. Adopt Best Available Techniques to promote SCP in the industrial sector			
Outputs	Activities	Lead institution	Other Stakeholders
1.1. Continue the transfer of SCP technologies to industries through demonstration activities	➤ Promote BATs by focusing on win-win solutions based on preventative approach which are bringing environmental and economic benefits at the same time ➤ Consolidate the experience generated from the provision of TA related to SCP in the industrial sector through on-going programme on SCPs ➤ Develop SCP database (BATs) for different industrial establishments ➤ Implement pilot projects to demonstrate SCP concepts on the major polluting industrial sectors, as well in those polluting Litani river basin and Qaroun lake, according to the Business Plan for Combating Pollution of the Qaraoun Lake (2011) ➤ Disseminate lessons learned among industries through practical and applied training ➤ Develop, in coordination with Ministry of Finance, Customs and BDL, an incentive programme to industries willing to adopt Best Available Techniques to promote SCP	MoE Mol	LCEC LCPC GPHD LEPAP MEDTEST II FCCIA
1.2. Upscale transfer of SCP technologies within industries.	➤ Launch new financial scheme within the Green Finance Initiative of BDL for resource efficient and cleaner production in industry and implement awareness raising campaign on financial schemes for industry ➤ Support services in area of resource efficient and cleaner production as an integral part of the above mentioned financial scheme ➤ Strengthen capacities of service providers with possible certification schemes for providers of SP services to industry	BDL MoE Mol	ABL LCEC LCPC GPHD LEPAP MEDTEST II
1.3. Identify value chains and green jobs based on the local market's supply and demand of SCP services in the industrial sector	➤ Assess the potential for green jobs creation in the industrial sector as a follow up to the ILO and UNDP Assessment of Green Jobs in Lebanon. ➤ Conduct a National Green Export Reviews (NGERs) through UNCTAD to identify promising green product value chains with high export potential in the industrial sector. ➤ Prepare Terms of Reference and specifications within the trade agreements for the promotion of new green value chain products	ILO UNDP UNCTAD	Mol MoE MoET MoF/IoF ALI FCCIA
1.4. Initiate a Local Authority Programme (LAP) on SCP	➤ Pilot the development of a Local Authority SCP programme in the industrial sector to be implemented at municipal/regional level in coordination with central authorities, using the Litani Basin and Qaraoun Lake as a priority area	MoE, Mol Municipalities in Litani Basin	MoEW MoIM UNIDO

Operational Objective 2. Introduce SCP approaches related to the industrial sector in the policy and institutional frameworks			
Outputs	Activities	Lead institution	Other Stakeholders
2.1. Establish an institutional mechanism for implementing SCP at the national level	➤ Sustainably activate a multi-stakeholder committee to support coordination, policy making and awareness raising and implementation of SCP with key stakeholders: MoE (as lead of committee), MoI, MoF/IoF, MoTE, ALI, FCCIA. ➤ Strengthen the technical unit within MoE and MoI for the mobilization and follow up of concerned stakeholders in the adoption of SCP measures in the industrial sector.	MoE MoI	MoF/IoF MoTE ALI FCCIA key NGOs key research UNEP
2.2. Develop priority regulations for industry in line with the national and international regulations specifically the Environment Law 444/2002 and the IPPC (EC/2008)	➤ Enforce and update industrial regulations and environmental regulations in line with SCP measures in the industrial sector focusing on the following: • supporting the implementation of the EIA and Compliance decrees (8633/2012 and 8471/2012) at the level of industries • promoting BATs with focus on preventive measures and techniques based on RECP principles • developing needed application decrees for recycling and reuse of materials in the industrial sector. ➤ Develop market-based instruments to support the adoption of SCP in industry ➤ Implement capacity building activities and technical assistance in prevention of pollution through RECP in industries	MoE MoI	MoF/IoF MoTE ALI FCCIA key NGOs key research
2.3. Harmonize and promote certification schemes and eco-labels for the providers and consumers of industrial sector in line with SCP approach	➤ Implement the Compliance Certificate according to the Compliance decree (8471/2012) for the adoption of SCP approaches at the level of industrial producers and consumers. ➤ Develop national standards and specifications for green value chain products in the industrial sector and ensure the issuance of needed certification and eco-labels for their promotion ➤ Establish a training programme related to certification schemes and eco-labels for the producers and consumers of sustainable industrial services ➤ Align national certification schemes and eco-labels with EU's regulations in order to promote the EuroMed public/private partnership dialogue in line with the vision of MoI for specialization	MoE MoI	MoET MoF/IoF LIBNOR IRI FCCIA LCEC QUALEB LCPC LEPAP
2.4. Implement recommendations of Sustainable Public Procurement Action Plan	➤ Initiate the implementation of the SPP action plan with regards to priority products (paper, printers, toners, detergents, and pesticides) where action can be taken immediately according to the assessment conducted under the SPP action plan	MoF/IoF	MoE MoI ALI FCCIA UNEP
2.5. Create additional industrial zones and improve management of existing ones as per the National Land Use Master Plan (NLUMP)	➤ Issue decrees related to the creation of additional industrial zones in line with NLUMP with the integration of the oriented industrial zones in all the cazas and with special focus on the Litani River Basin and in line with SCP approaches. ➤ Update existing decrees related to the existing industrial zones according to new environmental and social measures taking into consideration new buffer zones and SCP approaches. ➤ Pilot the zoning of industrial areas as per the NLUMP and focus on unplanned areas specifically in the Litani Basin and Qaraoun Lake	MoE MoI CDR Municipalities and Unions of Municipalities	MoPWT MoIM ALI

Operational Objective 3. Educate and raise awareness of consumers on SCP in the industrial sector			
Outputs	Activities	Lead institution	Other Stakeholders
3.1. Develop the appropriate educational and awareness tools for promoting SCP approaches in the industrial sector at the level of the consumers	➤ Compile and disseminate success stories and lessons learned from existing initiatives related to SCP in the industrial sector ➤ Develop the educational curricula of schools, technical institutes and universities to incorporate the concepts of SCP in the relevant degrees, this can include materials for extra-curricular activities in parallel with the curriculum as effective awareness raising procedures and tools ➤ Implement awareness campaigns to engage the Lebanese consumer in SCP practices and initiatives and promote dynamism in the green industry market (leaflets, TV spots, webpage, hotline, etc...) by engaging the civil society organizations and NGOs in the awareness campaigns, and events targeting the producers and the consumers and support on-going efforts in this area. ➤ Support the implementation of a yearly national competition for the adoption of SCP approaches in the industrial sector ensuring broad exposure of such best practices in the media and at the level of the larger public ➤ Establish a special awareness programme focusing on the Litani basin and Qaraoun Lake addressed to the consumers as well as to the local authorities	MEHE MoE Mol	Consumer Protection Association Lebanon Environment Forum Lebanon Eco Movement Association for Forest Development and Conservation Ibrahim Abd El Al Foundation CSR Lebanon Forum CSR ConNCet Beirut Energy Forum ALI FCCIA MoET
3.2. Strengthen the linkages between research and industry in the field of SCP	➤ Assess the research-industry links which can be initiated to support the input of research on SCP within industries in Lebanon ➤ Promote research on the industries where potential impact on the ecosystems can be reduced and target priority industries	MEHE CNRS Universities	Mol MoE ALI FCCIA UNIDO UNDP

ANNEX 2. SHORT-TERM SCP ACTION PLAN FOR THE INDUSTRIAL SECTOR IN LEBANON (2016-2018)

Operational Objective 1. Adopt Best Available Techniques to promote SCP in the industrial sector			
Outputs	Specific activities	Budget	Stakeholders
1.1. & 1.2. Promote and upscale the transfer of SCP approaches within industries.	➤ Compile and disseminate lessons learned in SCP approaches in the industrial sector from on-going programmes related to the adoption of Sustainable Production in industries ➤ Disseminate information related to financial schemes within the Green Finance Initiative of BdL for resource efficient and cleaner production in industry	\$50,000	BdL, MoE, Mol, ABL, LCEC, LCPC, GPHD, LEPAP, MEDTEST II, FCCIA
1.3. Identify value chains and green jobs based on the local market's supply and demand of SCP services in the industrial sector	➤ Assess the potential for green jobs creation in the industrial sector as a follow up to the ILO and UNDP Assessment of Green Jobs in Lebanon. ➤ Conduct a National Green Export Reviews (NGERs) through UNCTAD to identify promising green product value chains with high export potential in the industrial sector. ➤ Prepare Terms of Reference and specifications within the trade agreements for the promotion of new green value chain products	\$250,000	ILO, UNDP, UNCTAD, Mol, MoE, MoET, MoF/loF, ALI, FCCIA
1.4. Initiate a Local Authority Programme (LAP) on SCP	➤ Pilot the development of a Local Authority Programme in the industrial sector based on SCP to be implemented at municipal/regional level in coordination with central authorities, using the Litani Basin and Qaraoun Lake as a priority area	\$200,000	MoE, Mol, Municipalities in Litani Basin and Qaraoun Lake MoEW MoIM, UNIDO
Operational Objective 2. Introduce SCP approaches related to the industrial sector in the policy and institutional frameworks			
2.1. Establish an institutional mechanism for implementing SCP at the national level	➤ Establish the SCP Working Group as a coordination mechanism for the implementation of SCP with key stakeholders: MoE (as lead of committee), Mol, MoF/loF, MoTE, ALI, FCCIA, key NGOs and research ➤ Strengthen the technical unit within MoE for the implementation of the SCP Action Plan for the industrial sector.	\$250,000	MoE, Mol, MoF/loF, MoTE, ALI, FCCIA, key NGOs, key research, UNEP

2.2 & 2.3. Develop the legal framework & promote certification and eco-labeling in the industrial sector in line with SCP approaches	➤ Implement the Compliance Certificate according to the Compliance decree (8471/2012) for the adoption of SCP approaches at the level of industrial producers and consumers. ➤ Develop national standards and specifications for green value chain products in the industrial sector and ensure the issuance of needed certification and eco-labels for their promotion ➤ Establish a training programme related to certification schemes and eco-labels for the producers and consumers of sustainable industrial services	\$250,000	MoE, Mol, MoET, MoF/loF, LIBNOR, IRI, FCCIA, LCEC, QUALEB LCPC, LEPAP, MedDiet
2.4. Implement recommendations of Sustainable Public Procurement Action Plan	➤ Update and implement the SPP action plan developed with UNEP's support with regards to priority products (paper, printers, toners, detergents, and pesticides) where action can be taken immediately	\$250,000	MoF/loF, MoE, Mol, ALI, FCCIA
Operational Objective 3. Educate and raise awareness of consumers on SCP in the industrial sector			
3.1. Develop the appropriate educational awareness tools for promoting SCP approaches in the industrial sector at the level of the consumers	➤ Develop the educational curricula of schools, technical institutes and universities to incorporate the concepts of SCP in the relevant degrees, this can include materials for extra-curricular activities in parallel with the curriculum as effective awareness raising procedures and tools ➤ Implement awareness campaigns to engage the Lebanese consumer in SCP practices and initiatives and promote dynamism in the green industry market (leaflets, TVs spots, webpage, hotline, etc...) by engaging the civil society organizations and NGOs in the awareness campaigns, and events targeting the producers and the consumers and support on-going efforts in this area. ➤ Link up with on-going initiatives to integrate the concept of SCP approaches in the industrial sector in the implementation of national competitions ensuring broad exposure of such best practices in the media and at the level of the larger public	\$400,000	MEHE, MoE, Mol, NGOs, ALI, FCCIA, MoET, MoF/loF
3.2. Strengthen the linkages between research and industry in the field of SCP	➤ Assess the research-industry links which can be initiated to support the input of research on SCP within industries in Lebanon	\$100,000	MEHE, CNRS, Universities, Mol, MoE, ALI, FCCIA, UNIDO, UNDP
Grand Total		\$1,750,000	

ANNEX 3. STAKEHOLDERS MAPPING OF THE SCP ACTION PLAN FOR THE INDUSTRIAL SECTOR IN LEBANON

Introduction

This Annex provides an overview of the different stakeholders and their actions which are related to the development and implementation of the SCP Action Plan for the Industrial Sector.

This review focuses particularly on key stakeholders that need to be closely involved in the SCP Action Plan and will be responsible of its implementation as a collaborative process. The mapping exercise thus includes a prioritizing process for stakeholders' engagement. The outcomes of the mapping exercise will be used as a basis of the definition of the SCP Action Plan.

This mapping review provides a comprehensive review of all concerned institutions, NGOs, businesses and academic and research institutions, and provides a more specific focus on the main stakeholders' mandates, policies, plans and actions related to SCP in the industrial sector at the level of each stakeholder. The review is mainly reporting recent developments which confirm the support currently underway at the level of the different stakeholders for adopting an SCP approach in the industrial sector and should not be considered as a comprehensive analysis of the policies and activities of the different stakeholders.

Governmental institutions involved in SCP in the Industrial Sector

Ministry of Industry

The Ministry of Industry⁵² (MoI) was established in 1997 with the mission of elaborating, with all the actors, a policy to assure the industrial sector development. The Ministry is responsible for:

1. Creating the industrial legislative bases and frames;
2. Protecting the national industrial production in case from dumping;
3. Searching and supporting the creation opportunities and the industrial production development to respond to the evolutions of the national needs and the international orientations;
4. Searching opportunities allowing the industrial production development to meet the evolutions of the national needs and the international orientations;
5. Assuring Lebanon as an industrial country at the national and international level;
6. Promoting the small and medium enterprises and small and medium industries (SMEs, SMIs);
7. Collecting, analyzing and publishing industrial statistics in order to provide the different industrial stakeholders by studies and indicators, aiming to help them to make decisions. Creating a database of the industrial factories serving as reference for the exporters.

⁵² <http://www.industry.gov.lb>

At the legal level, several laws and regulations related to SCP in the industrial sector have been issued under Mol (refer to Table A1). The Mol is the lead authority for issuing industrial permits; its Service of Industrial Permitting – Department of Control is responsible for examining the permit period and the application of all terms and conditions related to the industrial permit including environmental requirements.

Table A1. Key laws and regulations related to SCP under the Ministry of Industry

Text	No	Date	Title
Decree	5243	04/05/2001	Classification of industrial establishments
Decree	8018	12/06/2002	Procedures and permitting requirements to establish/operate industrial establishments
Decree	7945	29/05/2002	Procedures to be followed in the Permitting Committee meetings and functions
Decree	9765	11/03/2003	Inspection procedures and penalties related to industrial establishments

Several research and technical centers are also associated to Mol and include:

- **The Industrial Research Institute⁵³ (IRI)** was established in 1953, the Industrial Research Institute (IRI) is a Lebanese institution for studies, industrial research and scientific testing and analysis. IRI is a not-for-profit institution, attached to the Ministry of Industry by Law n° 642/1997, with administrative and financial autonomy. IRI is the first accredited body in Lebanon (since 2004).
- **Lebanese Standards Institution⁵⁴ (LIBNOR)** is a public institution attached to the Ministry of Industry. It was established in 1962 by a law giving it solely the right to prepare, publish and amend national standards, as well as to grant the Lebanese Conformity Mark NL. Lebanese standards are prepared by technical committees formed by LIBNOR. They include setting the dimensions, conventions, symbols, and the definition of products quality, as well as the methods of testing and analysis. They also include the codes of practice for professional and structural work. Lebanese standards are voluntary in principle. However, for reasons of public health, public safety or national interest, a standard can be rendered mandatory by a decree from the council of ministers.

As indicated earlier in this report, **Mol is also cooperating with UNIDO in the implementation of MEDTEST II and other projects funded through UNIDO** (refer to Box A1 below).

⁵³ <http://www.iri.org.lb/>

⁵⁴ <http://www.libnor.gov.lb>

Box A1. UNIDO's programme to support the industrial sector in Lebanon

UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. UNIDO's mandate is to promote inclusive and sustainable industrial development in developing countries and economies in transition to harness the full potential of industry's contribution to the achievement of sustainable development, and lasting prosperity for all.

In carrying out the core requirements of its mission and mandate, UNIDO focuses on three main thematic areas namely Poverty reduction through productive activities, Trade capacity-building and Energy and environment. In the latter respect, and in line with its Green Industry policy, UNIDO provides assistance in:

- Resource efficient and low carbon path production where emphasis is placed on shifting to preventive techniques that focuses on the production processes. UNIDO helps promoting this shift through the establishment of national cleaner production centers and by implementing cleaner production projects;
- Clean energy access for productive uses; and
- Capacity building for the implementation of the multilateral environmental agreements.

In the different thematic areas, UNIDO draws on four mutually reinforcing categories of assistance: technical cooperation, analytical and policy advice, standard setting and compliance, and knowledge transfer and networking.

UNIDO is currently implementing several projects to support the development of the industrial sector in Lebanon, and is supporting Lebanon in defining a national policy for the industrial sector. UNIDO is also supporting in positioning the industrial sector in Lebanon within the coming up Sustainable Development Goals (SDGs) beyond 2015 and defining the targets for the SDGs related to an "Inclusive and Sustainable Industrial Development" approach, integrating the concepts of SCP as a basis.

In addition to MEDTEST II, the on-going projects supported by UNIDO in Lebanon include the following:

- Supporting the establishment of the Lebanese Packaging Center (LibanPack), which has addressed among other sustainable packaging activities;
- Supporting host communities in Lebanon affected by the high influx of Syrian refugees;
- Clusters in cultural and creative industries in the Southern Mediterranean.

Ministry of Environment

The Ministry of Environment⁵⁵ (MoE) was established in 1993 and was charged the protection and sustainable conservation of natural resources as well as initiation and activation of Lebanon's participation to the global environmental conventions.

The main legal basis of MoE is Law 444 of 2002, the Environmental Protection Act which set basic principles and general provisions to regulate environmental protection and management, and established the basis for the "Polluter Pays Principle". As called upon by the Environmental Protection Act; several regulations were enacted by MoE in cooperation with concerned national stakeholders and which are closely related to promoting SCP in the industrial sector, which include:

- Decree 8471 of 2012 concerning Environmental compliance of establishments which will set mandatory deadlines for industries after 2015;;
- Decree 8633 of 2012 concerning Fundamentals of Environmental Impact Assessment;
- Law 251 of 2014 concerning Environmental Prosecutor;

⁵⁵ www.moe.gov.lb

Several key policies and studies have been conducted by MoE and include:

- State of the Environment Report in Lebanon in 2010;
- Qaraoun Business Plan in 2011;
- Lebanon's Second National Communication to the UNFCCC in 2011, the Third National Communication to the UNFCCC is currently under preparation;
- National Report to Rio+20 in 2012;
- Policy Paper on Industrial Waste Water Management in 2013;

MoE is also implementing several projects promoting sustainable consumption patterns, the main projects include:

- **Lebanon Environmental Pollution Abatement Project (LEPAP)** which aims to reduce industrial pollution in targeted industrial enterprises and to strengthen the monitoring and enforcement capabilities of the Ministry of Environment. LEPAP is a joint initiative between the MOE, the Ministry of Finance, Banque Du Liban (BDL), the World Bank and the Italian Cooperation to set up a mechanism for financing the abatement of industrial pollution in targeted industrial enterprises and to provide necessary technical assistance for ensuring the implementation and the sustainability of these interventions (refer to Figure A1 below).
- **Support to Reform-Environmental Governance (StREG)** programme, financed by the European Union, is supporting several aspects related to SCP. These include strengthening Environmental inspection and enforcement strengthened in the industrial sector and development of relevant Environmental Fiscal Instruments (EFI) including financial incentives for green industries. The programme also includes a policy component which will develop a National Sustainable Development Strategy for Lebanon ensuring the mainstreaming of SCP within the Strategy.
- **Low Emission Capacity Building Programme, implemented by UNDP**, aims at improving Lebanon's relevant infrastructure, institutional capacities, information sharing and coordination processes to develop the required capacities to achieve low emission development. The programme's results include: Development of greenhouse gas (GHG) inventory management systems; Identification of opportunities for Nationally Appropriate Mitigation Actions (NAMAs); Design of systems for Measuring, Reporting, and Verification (MRV) of proposed actions and means to reduce GHG emissions; Development of Feed-in-Tariff and other financial/fiscal incentives for RE penetration; Design of Low Emission Development Strategies (LEDS) in the context of national priorities.
- **Lebanon's HCFC Phase-out Management Plan (HPMP)**, funded by the Multilateral Fund of the Montreal Protocol and implemented by UNDP, comprises of a combination of interventions such as technology transfer investments, policies and regulations, technical assistance, training, awareness and communications and management, coordination and monitoring in the Foams and Air Conditioning/Refrigeration sectors, to be implemented over six years from 2011 to 2017.

Figure A1. About LEPAP⁵⁶

	
OBJECTIVE OF LEPAP Following the approval of the Environmental Compliance Decree (ECD) 8471/2012, the Ministry of Environment (MoE) joined forces with the Central Bank of Lebanon (BDL), the World Bank and the Italian Cooperation to set up an environmental compliance mechanism for industrial enterprises through the Lebanon Environmental Pollution Abatement Project (LEPAP). LEPAP supports the financing of industrial pollution abatement interventions by offering concessional loans supported by the BDL through commercial banks to industries. LEPAP loans, which are at near zero interest rate, are provided for a period of 7 years, including a grace period of 2 years. LEPAP also provides free technical assistance to industries to respond to the technical requirements for accessing the loans and in line with the national regulations. This includes the preparation of Environmental Audits and Compliance Action Plans (EA/CAP).	ELIGIBILITY CRITEREA TECHNICAL CRITERIA - Industrial enterprises should meet national permitting conditions (construction and operation permits); - Industrial enterprises should accept to respond to the technical requirements of the ECD (preparation and implementation of EA/CAP); - Medical and/or industrial hazardous waste projects could be considered for financing provided they are privately owned. FINANCIAL CRITERIA - Industrial enterprises should be creditworthy as determined by the Commercial Bank; - Industrial enterprises should provide the loan guarantees as requested by the Commercial Bank; - A financial feasibility analysis should be performed as a basis for selection.

Ministry of Economy and Trade

The mission of the Ministry of Economy and Trade⁵⁷ (MoET) is to develop positive legal and economic environment for economic development and ensure public welfare and employment. The MoET is the principal institution coordinating the development of the Long-Term Development Strategy of the State which identifies measures aimed at accelerating economic growth, enhancement of economy competitiveness as well as promotion of employment and investments to the human capital. It makes active efforts to cooperate at all levels with public authorities, social partners, scientific establishments and business associations that can bring helpful consultations, advice and proposals instrumental in pursuing the Ministry's objectives in order to contribute to more rapid national economic growth.

⁵⁶ http://www.lb.undp.org/content/lebanon/en/home/operations/projects/environment_and_energy/support-to-the-lebanon-environmental-pollution-abatement-project.html

⁵⁷ <http://www.economy.gov.lb>

The **Directorate of Consumer Protection** holds major responsibilities with regards to SCP in Lebanon and accordingly plays an important role at the level of MoET in coordinating the implementation of the SCP Action Plan.

The MoET is also in the driving seat for promoting Lebanon's accession to **Trade Agreements**. Trade Liberalization is a key element of the MoET's comprehensive economic strategy. Free Trade Agreements were signed with Lebanon's major trading partners; namely the European Union (EU), the EFTA States (Switzerland, Lichtenstein, Norway, Iceland) and the Gulf Cooperation Countries (GCC); and a full establishment of the Greater Arab Free Trade Area (GAFTA) was achieved in January 2005. Lebanon is also actively negotiating accession to the World Trade Organization (WTO) and is preparing to become a member of the WTO.

At the legal level, the MoET has promoted several legal frameworks, including the Consumer Protection Law in 2011 and a draft Competition Law is still being pursued by the MoET.

The MoET has prepared in 2014 "**Lebanon SME Strategy: A Roadmap to 2020**", as the national strategy for Lebanon's entrepreneurs and SMES with the ambitious vision: SMEs as Key Economic Engine for Growth and Job Creation.

Among the projects related to SCP under MoET, **EU's QUALEB** has supported to align Lebanese practices to match EU practices in the fields of Standardization, Testing, Certification & Inspection, Accreditation Technical Regulations & Conformity Assessment and Market Surveillance.

Ministry of Energy and Water

The Ministry of Energy and Water⁵⁸ (MOEW) was established as early as 1966 with overall responsibilities for the water and electricity sectors and has since witnessed extensive legal and institutional reform in both sectors.

The responsibilities of the MoEW with regards to water and wastewater management were revised according to the Law 221 of 2000 whereby the responsibilities have included among others:

- 1) Establish public plans for the utilization and distribution of water resources, as well as prepare the master-plan for water and wastewater; and
- 2) Protect water resources from pollution and waste by issuing laws, rules and regulations and their application and enforcement.

In addition, and under the mandate of the MoEW, Law 221 of 2000 has also assigned the **Regional Water & Wastewater Establishments** with specific responsibilities include to plan, build, operate and maintain sewage treatment plants and networks.

Under Law 241, Regional Water Establishments became "Regional Water and Wastewater Establishments" (WWE). They have the following responsibilities (Article 4, Law 221):

- 1) Plan, build, operate and maintain sewage treatment plants (STP's) and networks;
- 2) Monitor water (drinking, irrigation) and wastewater in estuaries and on the exit of WWTP;
- 3) Recommend tariffs for water, irrigation and wastewater;
- 4) Oversee works, studies, and operation and maintenance of WWTP by private service providers.

⁵⁸ <http://www.energyandwater.gov.lb>

According to its implementation decrees, regional WWE can supply industries with 3m³ of water per day, for domestic use. Industries are very large water consumers and therefore rely on other sources to meet their needs. As long as the WWE lack water budgeting and planning, industries will continue to rely on (illegal) tapping of surface and groundwater to meet their growing needs. It is important that regional WWEs allocate water for industries as part of their annual water budget, and subject to water availability.

MoEW also established the **Litani River Authority**⁵⁹ in 1954 and is considered to be a public institution whose functions are identified as follows:

- Implement the Litani irrigation, drying, drinking water and electricity projects.
- Establish a network linking up power stations in Lebanon.
- Establish electrical substations and distribution lines in all the Lebanese regions.
- Invest in the different parts of the project at both the technical and the administrative levels
- Ensure water monitoring in all Lebanese rivers
- Examine, manage and exploit the irrigation water in Central and Northern Bekaa, including the Yammouneh and Wadi Massa-Yahfoufa project.
- Study and implement the project of diverting the Hasbani River and the Wazzani spring (The Lebanese part of the Arab project of diverting the tributaries of the Jordan River).
- Study and implement some mountain lakes like the Kawashira lake in Akkar, the Kfarhouna lake in Jezzine and the Ballout lake in Northern Metn.
- Study and scan the locations of dams in the northern Lebanese rivers. Study the blueprint of the agriculture water plan for South Lebanon in collaboration with the Food and Agriculture Organization (FAO).
- Conduct studies on the construction of the Bisri dam along the Awali River.

MOEW developed a National Wastewater Sector Strategy in 2010 setting the sector's targets including a target for include the **"Pre-treatment of all industrial wastewater by 2020"**. Under Wastewater Sector Strategy, the targets for 2011-2020 which are related to the industrial sector include the following:

- Increasing wastewater collection from 60 to 80 percent in 2015;
- Increasing treatment from the current 8 percent to 95 percent in 2020;
- Pre-treatment of all industrial wastewater by 2020;
- Increase the reuse of treated effluent from the current 0% to 20% in 2015, and 50% in 2020.

MOEW also developed a National Water Sector Strategy in 2010 and has cooperated with MoE in 2014 in conducting a Strategic Environmental Assessment of the National Water Sector Strategy.

With regards to its energy mandate, MoEW is also mandated with the energy sector and the latest regulatory framework for the organization of this sector is law 462 of 2002. The MoEW has also prepared a Policy Paper for the Electricity Sector in 2010 which guides the developments in this sector. MoEW has also prepared a National Energy Efficiency Action Plan for Lebanon in 2011 and cooperated with MoE in 2014 in the preparation of a Strategic Environmental Assessment for the National Energy Efficiency Action Plan for Lebanon.

Despite major challenges in the energy sector in Lebanon, a major breakthrough in the energy management agenda has been the successful creation of the LCEC (refer to Section 4.2.6 below).

⁵⁹ <http://www.litani.gov.lb>

Ministry of Finance

The Ministry of Finance's (MoF) vision is to *"lead the Government's economic reform through sound formulation and management of fiscal policy and public debt in order to foster sustainable economic growth in alignment with national priorities, acting as a role model for transparency, and accountability, in a manner that reflects good governance"*⁶⁰.

MoF plays an important role in promoting environmental fiscal reform in Lebanon and in supporting environmental initiatives in Lebanon.

Moreover, the Institute of Finance Bassil Fleyhan (IoF)⁶¹, which is an autonomous public agency operating under the tutelage of the Minister of Finance, is a civil service learning center specialized in **Public Financial Management and Customs**. The Institute has become a sustainable source of high quality, specialized training, human resource management, and communication and documentation services. The Bassil Fleyhan Institute, with the support of UNEP and UNDP, as well as concerned national institutions, prepared **the Sustainable Public Procurement (SPP) Action Plan for Lebanon in 2011**.

Ministry of Agriculture

The Ministry of Agriculture⁶² (MoA) is responsible among other for the agro-food industry, which constitutes the largest share of the industrial sector and as such has an important role in the development of this sector. **The role of the Ministry in support of the agro-food industry is mainly related to its direct contribution to the agricultural development as a key market for addressing surplus in agricultural production.**

Agro-food products also account for an important share of the total industrial exports, and the most important importing countries are the Gulf countries, the United States, Canada, Australia, Sweden and Germany; thus providing a potential for the Lebanese product competitive prospects in this sector.

The MoA agro-industrial aspects with regards to food and nutrition and propose ways to increase food production and reduce the cost of production and manufacturing through the following:

- Propose a clear plan for food and nutrition as an integral part of the overall economic and social development plan
- Proposal required scientific research to solve food and nutrition problems
- Cooperation with the various bodies and departments concerned to food and nutrition
- Support institutions and scientific groups that deal with food and nutrition affairs
- Develop and monitor food industry (including food and nutrition), developed and

In addition to its mandate for agro-food industries, MoA has also attached to it an important arm related to SCP in the industrial sector which is the **Lebanese Agricultural Research Institute (LARI)**⁶³. LARI is working under the supervision of the Minister of Agriculture and aims to improve quality and production of agricultural products, to protect and manage natural resources and environment, to improve agricultural management practices, to offer extensional services and training for farmers and to reduce the production cost.

⁶⁰ <http://www.finance.gov.lb>

⁶¹ <http://www.institutdesfinances.gov.lb>

⁶² <http://www.agriculture.gov.lb>

⁶³ <http://www.lari.gov.lb/>

LARI has established several research stations across the country and is conducting research as well as development activities in several areas including production of quality seeds, diagnosis of animal diseases, production of vaccines, food quality control, soil analysis, feed composition plant protection and others.

Ministry of Interior and Municipalities

The Ministry of Interior and Municipalities⁶⁴ is responsible for the preparation, coordination and implementation of the internal policy of Lebanon and ensures the maintenance of order and security. It also oversees the functions of the provinces, districts and municipalities, as well as unions of municipalities, the Independent Municipal Fund and various other local elected or appointed councils, parties and associations. It is also in charge of the management of the personal status of the Lebanese citizens and those of the refugees as well as the civil defence and vehicles and traffic.

Lebanon counts around 1000 municipalities which work under the tutelage of the Ministry of Interior and Municipalities. Municipalities are responsible for:

- Preparing general plans for works related to sanitary projects;
- Building and maintaining infrastructure including wastewater networks;
- Providing services related to the protection of the environment including solid waste management, wastewater treatment, construction permitting;
- Contributing to the permitting process of industrial establishments.

Ministry of Education and Higher Education

The Ministry of Education and Higher Education⁶⁵ (MEHE) is responsible for schools, universities and vocational training in Lebanon, it also hosts the Center for Educational Research and Development (CRDP). MEHE plays an important role in promoting environmental education and awareness programmes at the level of schools and has developed several programmes in this field (refer to Section 4.2.10).

MEHE is also in charge of the public Lebanese University and all current 34 private universities some of which are engaged in important research activities in the fields of engineering and industrial development (refer to Section 4.3.5).

Council for Development and Reconstruction

The Council for Development and Reconstruction⁶⁶ (CDR) was established in 1977 with the responsibilities specified to three main tasks: complying a plan and a time schedule for the resumption of reconstruction and of development, guaranteeing the funding of projects presented, supervising their execution and utilization by contributing to the process of rehabilitation of public institutions, thus enabling it to assume responsibility for the execution of a number of projects under the supervision of the Council of Ministers.

⁶⁴ <http://www.interior.gov.lb>

⁶⁵ <http://www.mehe.gov.lb>

⁶⁶ <http://www.cdr.gov.lb>

Upon the request of the Council of Ministers and the concerned line Ministries, **CDR has implemented major development and infrastructure projects in Lebanon including Waste Water Treatment Plants and Solid Wastes Management Plants.**

I n v e s t m e n t D e v e l o p m e n t A u t h o r i t y o f L e b a n o n

The Investment Development Authority of Lebanon⁶⁷ (IDAL) is the national investment promotion agency that was established in 1994 with the aim of promoting Lebanon as a key investment destination, and attracting, facilitating and retaining investments in the country. IDAL has identified a set of priority sectors that showed the most promising opportunities in terms of their investment potential and impact on socio-economic growth within the industrial sector.

Multiple financial facilities provided by the government:

- 50% exemption on tariff duties at export;
- 2% custom duties for machinery, equipment, spare parts and building material imported for the setting up of new industrial firms;
- 0% custom duties for textiles, semi-manufactured goods and raw materials
- Fiscal exemptions granted by IDAL which can run up to 100% exemptions on corporate income tax for a period up to 10 years for industrial companies;
- Signing of multiple bilateral and multilateral agreements which have had a positive impact on the improved access to markets for Lebanese exports in external markets;

B a n q u e d u L i b a n

Banque du Liban⁶⁸ (BdL) launched in 2010 its **green finance initiative through the circular 236**. Through this circular, banks are exempted from part of the reserve requirement if the bank provides businesses lower interest rate from those applied on commercial rates. When it started in 2010, the BDL's circular has provided interest rates close to 0% for energy efficiency activities and 2.5% to other environmental activities. In 2014, BDL has issued its yearly circular (Intermediate Circular 382) and sustained its **incentives to most environmental activities, including pollution abatement activities for industrial establishments.**

⁶⁷ <http://investinlebanon.gov.lb>

⁶⁸ <http://www.bdl.gov.lb/>

Private sector and NGOs involved in SCP in the Industrial Sector

Association of Lebanese Industries

Established in 1943, the Association of Lebanese Industrialists⁶⁹ (ALI) is the **main national association of manufacturing companies operating in Lebanon**. It deals with both economic and social issues concerning business and advocates a policy of balanced industrial development for all Lebanese regions. ALI seeks to create and maintain an environment which is favourable to industrial investment, job creation, growth and development. ALI has recorded to date over 1600 adhesion and has established an industrial database covering its members.

ALI has been involved in environmental issues since 1995, where an “Environment & Energy Committee (EEC)” was established and is still effective till present. In order to enhance the committee’s mission and support and raise awareness of members on issues related to green industry, and “Environment & Energy Department” was created in March 2009. **The Green Production Help Desk in Lebanon (GHD) was established at ALI, in cooperation with the UN-ESCWA**, with the main goal to strengthen capacities in Lebanon for greening the industrial sector (refer to Figure A2 below).

Figure A2. About the Green Production Help Desk in Lebanon (GHD)

 ASSOCIATION OF LEBANESE INDUSTRIALISTS GREEN PRODUCTION HELP DESK  In cooperation with: The United Nations Economic and Social Commission for Western Asia (UN-ESCWA) 	The GHD has been established at the Association of Lebanese Industrialists (ALI) in cooperation with the United Nations Economic and Social Commission for Western Asia UN-ESCWA, in October 2012 and is currently in full operation. The GHD aims to provide information and technical advice to Small and Medium Enterprises (SMEs) that want to develop their products and/or their means of production to fit with the principles and objectives of sustainable development, and enable them to engage in the emerging green economy. ALI ensures the sustainability of the GHD within its premises. Main Services of the GHD: ➤ Collection and Dissemination of Information - Green business opportunities; - National policies, programs, institutions and laws related to green economy; - Green funding opportunities; - Regional and international support programs and best practices in green production; ➤ Training - Organize national workshops and training courses for trainers on topics related to green production sectors. ➤ Networking - Act as a network of experts and national authorities specialized in the development of green production sectors.
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⁶⁹ <http://ali.org.lb>

Federation of Chambers of Commerce, Industry and Agriculture

The Federation of Chambers of Commerce, Industry and Agriculture⁷⁰ (FCCIA) in Lebanon was formed in 1996 and is **constituted of the four active chambers in Lebanon** which include the following:

- The Chamber of Commerce, Industry and Agriculture of Beirut and Mount-Lebanon.
- The Chamber of Commerce, Industry and Agriculture of Tripoli and the North.
- The Chamber of Commerce, Industry and Agriculture of Saida and the South.
- The Chamber of Commerce, Industry and Agriculture of Zahle and the Bekaa.

The FCCIA's strategy aims at **stimulating all sectors of economic activity and enabling them to contribute to the development of a strong and competitive national economy**. This is to be achieved through the elimination of the impediments hindering private investment. Within that perspective, the Federation has reinforced the existing partnership between the private and the public sectors, and tightened coordination with all Chambers, sectoral associations and organizations of the civil society.

Decree No 36 of 1967 awarded the **Lebanese Chambers the exclusive rights to the provision of services to business enterprises namely, the issuance of certificates of origin and the authentication of invoices and commercial documents**.

Association of Banks of Lebanon

The Association of Banks in Lebanon⁷¹ (ABL) is a professional association with its key mission to **promote the interests and public image of the Lebanese banking sector**. It is a leading contributor to public policies debates and legislation, in particular those related to the financial sector. It plays a crucial role as coordinator among banks on common issues regarding standards, procedures, technology, etc.

As of February 2015, **ABL members count 70 banks and 6 representative offices of foreign banks**.

Kafalat

Kafalat⁷² is a Lebanese financial company with a public concern that **assists SMEs to access commercial bank funding**. Kafalat helps SMEs by providing loan guarantees based on business plans / feasibility studies that show the viability of the proposed business activity. It processes guarantee applications for loans that are to be provided by Lebanese banks to SMEs operating throughout Lebanon under the Kafalat programme.

Kafalat targets SMEs and innovative start ups that belong to different economic sectors including the industrial sector. Kafalat is owned by the National Institute for the Guarantee of Deposits (for 75%) and fifty Lebanese banks (for 25%)

Loans guaranteed by Kafalat benefit from interest rate subsidy. These subsidies were set up to mitigate the crowding out effect of the high interest rates in Lebanon induced by public sector borrowing. Interest rate subsidies are financed by the Lebanese treasury and administered by the Central Bank of Lebanon.

⁷⁰ <http://www.cci-fed.org.lb>

⁷¹ <http://www.abl.org.lb>

⁷² <http://kafalat.com.lb/>

Kafalat's action focuses on 3 different but complementary levels:

- i. Serving borrowers: Kafalat loan guarantees are issued based on the viability of the business project to be financed. The guarantee that is made in favor of the lending bank, allows the borrower to provide the bank with collateral, which makes the loan safer for the bank. With the Kafalat loan guarantee, the bank may require less complementary collateral for the loan.
- ii. Serving lenders (the banks): For banks, Kafalat loan guarantees reduce the lending risk. In addition, Kafalat guaranteed loans in Lebanese Pounds benefit from a Central Bank exemption of the statutory reserve requirement. This significantly reduces the lending bank's cost of capital, allowing lending at lower interest rates.
- iii. Serving the Lebanese Economy: The Lebanese private sector is dominated by small and medium sized enterprises that face difficulties in accessing classical commercial bank funding. Kafalat loan guarantees bridge that gap for SMEs in Lebanon by making possible otherwise inaccessible commercial bank financing. This allows SMEs to increase the financing of their business activities, which leads to increased domestic investment, output, and employment.

Lebanese Cleaner Production Centre

The Lebanese Cleaner Production Centre⁷³ (LCPC) was established in 2002 at the Ministry of Environment (MoE, decree Nb. 7863) by the United Nations Industrial Development Organization (UNIDO). LCPC moved in February 2004 to the Industrial Research Institute (IRI) in Hadath - Baabda. LCPC is part of UNIDO-UNEP Global Network which comprises National Cleaner Production Centers (NCPC) in 45 countries.

LCPC work is to improve the environmental performance of products, processes and services by focusing on the causes of environmental problems rather, while encouraging economic development and industrial growth through saving costs and facilitating the access of local products to international markets.

LCPC seeks to assist the national industries, especially SME's, in the adoption of sustainable production modes through the application of Resource Efficiency and Cleaner Production and the transfer of Environmentally Sound Technologies.

LCPC is supporting industrial establishments in enhancing their productivity and facilitating their access to new and more demanding markets, while at the same time improving their environmental and social performance.

Lebanese Center for Energy Conservation

Lebanese Center for Energy Conservation⁷⁴ (LCEC) which was created in 2002 as a project financed by the Global Environment Facility and the MoEW) under the management of the United Nations Development Programme (UNDP). LCEC gradually established itself as an independent technical national center although it continues to be supported by the UNDP.

⁷³ www.lebanese-cpc.net

⁷⁴ <http://www.lcecp.org.lb>

LCEC is now established as a national NGO affiliated to the Lebanese Ministry of Energy and Water. LCEC addresses end-use energy conservation and renewable energy at the national level. It supports the Government of Lebanon to develop and implement national strategies that promote the development of efficient and rational uses of energy and the use of renewable energy at the consumer level.

C o n s u m e r P r o t e c t i o n A s s o c i a t i o n

Consumers Lebanon⁷⁵ defends consumer rights in Lebanon since 2000 and has initiated extensive action in support of modern and efficient consumer protection legislation in Lebanon. Consumers Lebanon is an experienced and successful campaigning organisation: it has campaigned on a wide range of issues including food security, pollution, VAT, pesticides, drinkable water, Lebanon's admission to the WTO and the establishment of a quarterly consumer price index. It also publishes a regular newsletter and runs a hotline where consumers can phone to report a complaint. Consumers Lebanon sits on a number of national committees and has become influential in terms of shaping public opinion. Its presence in the media is almost daily.

Since 2013, Consumers Lebanon is member of Consumers International (CI), the world federation of consumer groups and considered as one of the most important global voice for consumers.

L e b a n e s e E n v i r o n m e n t F o r u m

The Lebanese Environment Forum⁷⁶ (LEF) was established in 1992 and comprises currently 46 environmental non-governmental organizations. LEF is a non-political and non-profit organization, working at the national level. LEF's objectives are the following:

- Protection of environment by gathering organizations, comities and bodies interested in environment to coordinate their work, unifying their goals, and enhancing their effectiveness.
- Coordination among its members to ensure the spread of information and contact ministries and national and international organizations in order to boost action.
- Encouraging the establishment of new environmental organizations in Lebanon.

LEF has engaged in several important environmental activities including:

- Proposing a national strategy for the environment in Lebanon in 1994 with the support of the Fredrich Ebert Foundation.
- Publishing a leaflet named "Al Khodor" that aims to show all the activities of the forum and its organizations and to be as a link between these organizations.
- Supporting and participating in the foundation of the ministry of environment and its continuity by interviewing politicians and spirituals. The forum is still following the strengthening of ministry's capacities and approving environmental laws especially concerning the sector of quarries and crushers.
- Participating in regional and international seminars, symposiums, workshops and environmental conferences.

⁷⁵ <http://www.consumersinternational.org/our-members/member-directory/Consumers%20Lebanon%20-%20Jamyat%20Almoustahik-Loubnan>

⁷⁶ <http://www.lbeforum.org/>

- Setting up an information network among the environmental organizations in order to collect information and spread it among them through advanced media (It started in Feb. 1995)
- Planting trees, establishing environment clubs in schools and universities and spreading awareness of environment protection.
- LEF has published 6 books.

L e b a n o n E c o M o v e m e n t

The Lebanon Eco Movement⁷⁷ is an association of over 70 NGOs in Lebanon gathered around the mission to “Continue to struggle to reach a country with a sound and sustainable environment”.

The Lebanon Eco Movement objectives are the following:

- Preserve the natural and cultural heritage
- Coordinate among associations
- Participate in the development of national environmental policy
- Promote environmental awareness
- Adopt all legitimate and legal means, including recourse to the courts and to provide suits and revisions before the courts and in any direct or indirect capacity linked to the objectives of the association

The Movement is focusing on 3 key issues in Lebanon namely:

1. Solid waste management.
2. Environmental impact of dams.
3. Hunting.

A s s o c i a t i o n f o r F o r e s t D e v e l o p m e n t a n d C o n s e r v a t i o n

The Association of Forest Development and Conservation⁷⁸ (AFDC) was established in 1993 and officially registered as an NGO in 1994. AFDC’s mission is to achieve sustainable conservation of natural resources, raise awareness and build capacities to contribute to the national efforts for better environmental management. Fundamental to AFDC’s mission is the pursuit of community-based conservation for the sustainable livelihoods of people. This comes from the idea that conservation will fail if local communities do not benefit from it.

AFDC has been a pioneer in environmental education and awareness in Lebanon and has developed and implemented an extensive programme which can greatly benefit the development and implementation of the SCP action plan for the industrial sector (refer to Box A2 below).

⁷⁷ <http://www.lebanoNCEomovement.org>

⁷⁸ <http://www.afdc.org.lb>

Box A2. AFDC's activities related to environmental education

AFDC developed the National Policy of Environmental Education in Lebanon which was launched in October 2012 under the patronage of MEHE and MoE.

AFDC also developed an Environmental Education Curriculum for the 1st educational cycle grades (1, 2 & 3) which is divided into seven chapters, and introduced the environmental education theme such as ecosystem, pollution, natural resource and sustainable development. The curriculum presented the environmental events calendar for the national and the international days. Furthermore, the developed curriculum for environmental education of the 1st cycle presented the teaching methodology based on the competencies, in order to achieve environmentally aware citizens. The curriculum was tested through several workshops that engaged the teachers and their students for the same cycle.

Ibrahim Abd El Al Foundation

The Ibrahim Abd El Al Foundation⁷⁹ was founded in 1991, and is a scientific association that seeks to honour the memory of one of the most eminent scientist in Lebanon in the water and energy field, Ibrahim Abdel Al. The Foundation is actively working to raise awareness and advocacy on water resources and promotes the principles of Integrated Water Resources Management as a means to achieve economical stability and provide basic social welfare by bringing water and light to every home.

The Foundation has implemented various awareness and advocacy campaigns in the field of water management and focused on the Litani River and Qaraoun Lake and can play an important role in the promotion of SCP approaches in the industrial sector (refer to Box A3).

Box A3. Awareness and advocacy for water management

The Association has committed itself to set a series of activities related to the Millennium Development Goals, focusing on awareness and advocacy for Water. In order to strengthen public understanding of Water issues and its active involvement in Water Management, the Foundation is developing the potential of the decision makers and the public through awareness raising campaigns and capacity building projects as well as organizing lectures dealing with national and regional water issues. The Foundation has established a wide campaign of public awareness in order to draw attention to the value of Water and the problems related to it (pollution, scarcity, management, etc...) The awareness campaign is composed of awareness sessions in schools at the country level, awareness sessions in municipalities, local associations (with special emphasis on women's associations), local communities, awareness campaign on the pollution of the Litani River, documentary film, TV spots, stickers, etc...

⁷⁹ <http://www.ibrahimabdelal.org>

Research and academic institutions involved in SCP in the Industrial Sector

National Council for Scientific Research

The National Council for Scientific Research⁸⁰ (CNRS-L) was established in 1962 as a **central science policy-making public institution** under the authority of the Prime Minister and granted administrative and financial autonomy. It has two major functions:

1. Advisory Function: The CNRS-L draws the general outline of the National Science Policy and formulates proposals and suggestions to the government and carries out surveys and inventories of on-going research activities in private and public institutions in the country.
2. Executive Function: Consists basically in the implementation of the National Science Policy. To achieve this objective, the CNRS-L initiates, encourages and coordinates research. In addition, it leads and organizes scientific research activities within its defined work programs.

The CNRS-L manages and runs the following research centers:

- Center for Marine Sciences;
- Center for Geophysics;
- Center for Remote Sensing;
- Lebanese Atomic Energy Commission;

Universities

Lebanon has a very rich university system with one public university (the Lebanese University) and 28 private universities which were granted a license from the Ministry of Education and Higher Education.

Partnerships with universities and NCSR may be highlighted to focus on solving problems related to optimization in the processes, production, final products, and internal environment of the industry, health risk assessment, etc... Research in these fields is crucial to the industry, and this may be linked directly to recommend partnerships between research in universities and research and development departments in the industries⁸¹.

The universities with important research facilities and which can significantly contribute to promoting SCP in the industrial sector include the following:

- Lebanese University,
- American University of Beirut,
- University of Saint Joseph,
- University of Balamand.

As an example, the University of Balamand has extensive competencies in life cycle assessments and can provide support to the industrial sector in applying such assessments to various industrial fields, such as wood products which has been conducted recently by the university team⁸².

⁸⁰ <http://www.cnrs.edu.lb>

⁸¹ Personal communication. Professor Antoine El Samran, Géosciences de l'Environnement, Université Libanaise. 8 May 2015.

⁸² Personal communication. Dr. Sabine Saba, Director of Environmental Economics Program, University of Balamand. 23 April 2015.

Developing Sustainable Consumption and Production (SCP) National Action Plans (NAP) contributes to poverty alleviation, environmental sustainability and the development of a green economy. SCP-NAPs are a first step in a country's response to the 2015 adopted Sustainable Development Goals (SDGs) and in particular **Goal 12: Ensure Sustainable Consumption and Production patterns.**

In a multi-stakeholder and inclusive process Lebanon developed a national SCP Action Plan for the Industrial Sector to promote Sustainable Consumption and Production patterns, with a special focus on the Litani Basin and Qaraoun Lake.

The SCP Action Plan for the Industrial Sector in Lebanon has identified 3 operational objectives:

- Adopt Best Available Techniques to promote SCP in the industrial sector;
- Introduce SCP approaches related to the industrial sector in the policy and institutional frameworks;
- Educate and raise awareness of consumers on SCP in the industrial sector;

UNEP-DTIE Coordinator of the national SCP policy component of the EU-funded SwitchMed program provided advisory services and technical assistance to the SCP-NAP process in Lebanon.



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SwitchMed Programme
is funded by the
European Union



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