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**IMPACT OF INDUSTRIAL POLICIES ON THE COMPETITIVENESS
OF SMALL AND MEDIUM-SIZED ENTERPRISES**



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Preface

This study has been prepared by the secretariat of the Economic and Social Commission for Western Asia (ESCWA) as part of its regular programme of work for the 2006-2007 biennium. The study draws upon work that ESCWA is implementing within the framework of harnessing technology and enterprise development for the improved productivity of small and medium-sized enterprises, with a view to improving sustainable natural resource management. The study also seeks to provide tools and techniques for assisting decision makers in formulating policies that support the competitiveness of small and medium-sized enterprises.

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ABBREVIATIONS AND EXPLANATORY NOTES

AIDMO	Arab Industrial Development and Mining Organization
ALI	Association of Lebanese Industrialists
ASEZA	Aqaba Special Economic Zone Authority
ASTM	American Society for Testing and Materials
CBI	Centre for the Promotion of Imports from Developing Countries
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
DFID	Department for International Development
DIC	Dubai Industrial City
EC	European Commission
EFTA	European Free Trade Association
EIA	environmental impact assessment
EIC	Euro Info Centre
EICC	Euro Info Correspondence Centre
ELCIM	Euro-Lebanese Centre for Industrial Modernisation
EN	European norm
ERF	Economic Research Forum
ESCWA	Economic and Social Commission for Western Asia
ETSI	European Telecommunications Standards Institute
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDA	Food and Drug Administration (United States)
FZC	Free Zones Corporation (Jordan)
GAFI	General Authority for Investment and Free Zones (Egypt)
GAFTA	Greater Arab Free Trade Area
GCC	Gulf Cooperation Council
GDP	gross domestic product
HS	Harmonized System
ICS	International Calibration Standard
IEC	International Electrotechnical Commission
IIAA	integrated impact assessment approach
INFOSAN	International Food Safety Authorities Network
IPPC	International Plant Protection Convention
IRI	Industrial Research Institute (Lebanon)
ISO	International Standards Organization
ISONET	ISO Information Network
JAED	Jordan Authority for Enterprise Development
JAFZA	Jebel Ali Free Zone
JD	Jordanian dinar

ABBREVIATIONS AND EXPLANATORY NOTES *(continued)*

JIB	Jordan Investment Board
JIEC	Jordan Industrial Estates Corporation
Libnor	Lebanese Standards Institution
LP	lebanese pounds
NCTE	National Committee on Trade and Environment
NIST	National Institute of Standards and Technology (United States)
OIE	World Organisation for Animal Health (historical acronym for Office International des Epizooties)
OMSAR	Office of the Minister of State for Administrative Reform (Lebanon)
QIZ	qualified industrial zone
RIA	regulatory impact assessment
SEZ	special economic zone
SIA	sustainability impact assessment
SMEs	small and medium-sized enterprises
SPS	sanitary and phytosanitary
SPS IMS	SPS Information Management System
SPX	Subcontracting and Partnership Exchange
TBT	Technical Barriers to Trade
WHO	World Health Organization
WSSN	World Standards Services Network
WTO	World Trade Organization

References to “dollars” (\$) indicate United States dollars.

Executive summary

The purpose of industrial policy is to establish a course of action to support the achievement of development goals that depend upon the performance of the manufacturing and industrial sectors. Industrial policy is usually justified on the grounds that market failures impede the proper functioning of free markets and thus prevent the ability of countries to attain development targets. Government intervention is thus needed to overcome market failures, and even the playing field, to allow for more fair and transparent competition. Small and medium-sized enterprises (SMEs) should be considered when designing industrial policies as they constitute over 95 per cent of firms in the ESCWA member States and support socio-economic welfare in the region.

A strategic way of thinking about industrial policy-making is important when considering the impact of industrial policies on SMEs since public policies, interventions and institutions may be explicitly or implicitly biased against small and medium-sized producers. This is particularly true in developing countries, where policies tend to favour larger firms with better resources and connections than smaller firms, and in case where industrial support schemes are designed in a manner that does not take into account the special challenges and constraints faced by SMEs engaged in manufacturing. Impact assessment methodologies can be used to help decision makers to design industrial policies that take into consideration the impact of such policies on SMEs within the framework of development goals.

Several industrial policies affect the competitiveness of SMEs. This study examines two industrial policies identified through a consultative process with regional and national stakeholders by applying proposed impact assessment methods. The first industrial policy examines the position taken by most countries to improve access to information about international standards as a means to assist firms in increasing their international competitiveness. An illustrative case-study then examines the policy framework supporting this position in Lebanon, and the effects that information externalities have on impeding the realization of this policy objective, particularly among SMEs. The study finds that although there are policies and information resources in place supporting access to standards and technical regulations, local manufacturing SMEs are not able to take advantage of these resources owing to a variety of constraints specific to SMEs. Among these is the finding that the time and resources needed to access information about standards is generally higher for small manufacturers relative to larger firms.

Government intervention to establish and promote the sound management of industrial zones is another area of industrial policy formulation that can improve SME competitiveness if properly designed and targeted to achieve development goals. Based on the view that industrial zones can foster opportunities for networking and industrial clustering through geographic proximity and economies of scale, industrial zones can also facilitate investment in the environmental services and infrastructure needed to support industrial development. The study examines industrial zones in the ESCWA region, and particularly those in the United Arab Emirates and Jordan. A case-study on industrial zone policies in Jordan is then elaborated using impact assessment methods that find that the enforcement of sound environmental management practices in industrial zones does not adversely impact the competitiveness of SMEs and does not dissuade smaller firms from establishing themselves in industrial zones. As such, industrial zone policies that seek to attract foreign investment (which is mostly geared to large industries), as well as to create employment and income opportunities (which are mostly provided by SMEs), are not mutually exclusive and can be achieved in complementarity with sustainable development goals. Environmental considerations should thus be incorporated into industrial zoning policies and planning from the onset.

Government interventions can lead to an improved enabling environment for SMEs, with positive impacts on competitiveness, or to a more complicated environment in which SMEs are unable to overcome challenges associated with their size, market failures or poorly formulated policies. Lessons learned from the case-studies thus reveal that industrial policies must be appropriately designed and targeted if they are to achieve their development objectives. Impact assessment tools can help decision makers to design and monitor the impact of industrial policies on SMEs with a view towards supporting their competitiveness, ensuring policy coherence and realizing sustainable development goals.

Introduction

Over the past decade, ESCWA member countries have been increasingly engaged in economic and industrial modernization programmes that are largely based on trade liberalization and private sector development. International trade agreements and associated growth in cross-border trade have increased the importance of compliance with standards, and of conformity assessment and quality control measures as keys for accessing foreign markets and maintaining competitiveness in local markets. Efficiency and productivity have become yardsticks against which firms measure their competitiveness, while countries have sought to generate economies of scale through clustering, networking and the development of industrial zones. Innovation and investment have in turn become the central tenants of industrial policies in developed and developing countries alike. However, while the ESCWA region has directed significant resources towards massive investment projects in the oil, gas and mining sectors, as well as real estate development, the concern arises that industrial policies seeking to reap the benefits of globalization have mostly been oriented towards developing large industries rather than small and medium-sized enterprises (SMEs), which constitute the backbone of socio-economic welfare in the region.

The purpose of industrial policy is to establish a course of action to support the achievement of development goals that depend upon the performance of the manufacturing and industrial sectors. Industrial policy is usually justified on the grounds that market failures impede the proper functioning of free markets and thus prevent the ability of countries to attain development targets. Government intervention is thus needed to overcome market failures, and even the playing field, to allow for more fair and transparent competition. This strategic way of thinking about industrial policy-making is particularly important when considering the impact of industrial policies on SMEs since public policies, interventions and institutions may be explicitly or implicitly biased against small and medium-sized producers. This is particularly true in developing countries, where policies tend to favour larger firms with better resources and connections than smaller firms, and in case where industrial support schemes are designed in a manner that does not take into account the special challenges and constraints faced by SMEs engaged in manufacturing.¹ In addition, international experience in implementing industrial policies has been far from glowing, and government failures to design and direct sound industrial policy interventions effectively have sometimes proved more detrimental than market failure itself, particularly for SMEs.

Historically, governments have pursued vertical industrial policies that target selected sectors for growth. These types of industrial policies have sought to protect infant industries and subsidize strategic sectors. While such policies are still undertaken by developed and developing countries to some degree, this approach has largely been discredited as contrary to policies seeking to pursue trade liberalization and more open markets. Furthermore, vertical industrial policies tend to correspond to centralized decision-making structures where development targets are concentrated on macroeconomic growth indicators (including national output, exports and foreign direct investment) or on national security concerns. This approach tends to discourage private enterprise development and innovation, and prevents more even microeconomic growth and the distribution of welfare benefits across sectors. Favouring certain sectors over others also promotes rent-seeking behaviours in which interest groups seek to influence public policy and maintain interventionist support schemes for personal gain.

Alternatively, horizontal industrial policies have gained wider support in recent years as a more effective approach to overcoming market failures. By facilitating access to information, strengthening legal and institutional frameworks, building capacity and expanding infrastructure, governments can create the enabling environment needed to foster industrial development. Studies have also shown that horizontal policies tend to reduce market distortions, promote more open and transparent competition, and reduce the

¹ For an elaboration on how firm size, market distortions and misguided policy interventions can adversely impact SMEs, see Sanjaya Lall, "Strengthening SMEs for International Competitiveness", presented at the Workshop on What Makes Your Firm Internationally Competitive?" held at the Egyptian Centre for Economic Studies, Cairo, from 6 to 8 March 2000.

risk of policy failure associated with misdirected interventions.² Recent literature goes further by endorsing a new model for industrial growth based on a strategic partnership between the public and private sectors in which stakeholders jointly devise suitable and effective policies through more open lines of communication; it is argued that this allows for a better exchange of information on the challenges and opportunities facing private sector development and enhances the process of industrial policy formulation.³ Care must be taken, however, to ensure that horizontal policies do not also result in sectoral biases and that coordination and consultation remain balanced between interest groups.

Whether horizontal or vertical in scope, industrial policies are interventionist instruments used by governments to establish a course of action and to achieve one or more policy outcomes, and, more important, policy impacts. While improving the process of formulating industrial policies through coordination is important, it is equally important to ensure policy coherence across sectors by strengthening the analytical frameworks through which industrial policies can be appropriately assessed within a sustainable development framework. Consultative approaches should thus first and foremost establish agreement on the development goal(s) that industrial policy interventions should serve. For example, while an industrial policy might seek to improve the business climate, assessing the success of the intervention should be considered with a view to whether the intervention has increased exports, reduced transaction costs for SMEs, generated income, created employment or facilitated investment in more sustainable production processes. Clarifying the desired impact or impacts from the onset of the policy formulation process can improve the design of industrial policy interventions as well as allow for better monitoring and assessment of their effectiveness.

In mitigating market failures, decision makers generally pursue industrial policies to enhance competitiveness. Interventions often focus on reducing costs associated with market externalities and/or generating benefits from economies of scale. There are many market externalities that impede free and fair competition between firms and between countries. These includes differences in access to financing, labour market rigidities, factor costs and—although this has been a cause of economic debate—differences in technological capacity.

Information externalities also hinder open competition. This is because there are costs associated with accessing information, including time and resources needed to collect, classify and manage knowledge. Barriers to information dissemination can impede the entrepreneurship, innovation and technological change that emerge from and contribute to the generation of new knowledge. However, the cost of accessing and assessing the utility of information is higher for small firms relative to larger firms that often have the resources to maintain in-house operations responsible for research and development as well as knowledge management. Industrial policies that seek to overcome information externalities can thus foster an enabling environment that allows firms to comply with international standards, engage in experimentation, create new product lines and access new markets, particularly if care is taken to increase access to information in ways that can engender benefits for small and large firms alike.

Enhancing competitiveness through economies of scale and industrial clustering is another area of industrial policy formulation that can prove successful if properly designed and targeted. For instance, industrial zones can provide an enabling environment in which manufacturers of different sizes can find the land, services, infrastructure and suppliers suitable for their business purposes. Through the geographic concentration of firms in areas identified as appropriate for manufacturing, industrial zones can also provide the means through which governments can achieve industrial policy objectives while also enhancing sustainable development through the provision of dedicated environmental services and infrastructure.

² See Dani Rodrik, "Industrial Policy for the Twenty-First Century", Discussion Paper Series, No. 4767, Centre for Economic Policy Research, November 2004; and Mustafa Nabli and others, "The Political Economy of Industrial Policy in the Middle East and North Africa", World Bank Working Paper, March 2006.

³ See work conducted by Dani Rodrik, Ricardo Hausmann, and Klinger Bailey, among others.

However, clarity regarding these goals is essential since industrial zones can be designed to serve a variety of purposes with different development aims. For example, industrial zones that seek to attract investments in export-oriented sectors or heavy industries may not be as effective in improving SME competitiveness, increasing national employment, enhancing rural development or conserving natural resources. As such, industrial policies promoting the establishment of industrial zones should be appropriately formulated with a view towards achieving the development goals they seek to support.

This study examines the impact of industrial policies on SME competitiveness and proposes an analytical framework for assessing these impacts. SMEs are targeted since they constitute over 95 per cent of firms in the ESCWA region and have been historically marginalized in industrial policies adopted by the ESCWA member States. This is due to the fact that industrial policies in the ESCWA region have largely sought to encourage the development of large-scale industrial complexes in the region, to attract foreign direct investment in real estate development and the services sector, and to achieve national security objectives. Given the increasing attention now being directed towards trade liberalization and private sector development, as well as the increasing competitive pressures faced by SMEs in the global marketplace, this study seeks to raise awareness that industrial policies should be formulated with a view towards their effects on, and effectiveness in, enhancing SME competitiveness. The study also seeks to enhance understanding on ways that industrial policies might be oriented towards promoting SME development as a means to achieve national development goals, particularly those associated with employment creation, income generation and sustainable development.

Chapter I is a methodological review of impact assessment tools that can contribute to improving analysis of the impacts that industrial policies have on SMEs. The chapter differentiates between different types of impact assessments and details the methodological framework that was applied in developing the two case-studies that are subsequently elaborated in the study by applying these impact assessment methods. Care was taken to formulate indicators for assessing industrial policy interventions as they relate to SME competitiveness and stated development goals. The industrial policies examined in the case-studies were identified through a consultative process conducted with public and private stakeholders at the regional and national levels.

Chapter II examines how most countries have adopted industrial policies that seek to assist firms in complying with international standards as a means to enhance their international competitiveness. However, the need to overcome the externalities associated with accessing information about standards and technical regulations is often understated in these policies, and a second generation of industrial policies has emerged in ESCWA member countries to try to improve access to information in order to comply with the policies and principles set forth in international trade agreements and national development plans regarding transparency and access to information. An assessment of these policies was conducted since they often do not direct sufficient attention to the constraints faced by SMEs in accessing information about standards relevant to their industries. These challenges are elaborated through an illustrative case study about access to information on standards in Lebanon, which assesses the policies, instruments, institutions, costs and benefits that affect SME access to information about standards.

Chapter III examines industrial policies associated with the establishment and management of industrial zones and the experience of different ESCWA member countries in developing industrial zones that seek to create economic opportunities from geographically clustering industries in certain areas. A review of industrial zones in the United Arab Emirates is provided, as well as an illustrative case-study of the Jordanian experience in establishing industrial zones. The assessment of industrial policies promoting industrial zones in Jordan specifically examines their ability to assist SMEs in enhancing their competitiveness in view of national development goals seeking to enhance employment and income opportunities in Jordan, as well as manage national resources and the environment in a sustainable manner.

The identification and elaboration of the case-studies was initiated at the regional level and then supported through consultations at the national level, involving stakeholders in Lebanon and Jordan.

Common impact assessment methods were applied when preparing both case-studies. As such, each case-study begins with a review of the policy framework and then details the methods and indicators used to guide the analysis. The impact assessment findings are then followed by recommended corrective measures for improving the effectiveness of the industrial policy interventions to meet national development goals. Lessons learned from examining these industrial policies in the ESCWA region are offered at the end of each case-study. Concluding remarks are presented in chapter IV.

It is expected that the process of preparing this study, as well as this final output, will have helped to inform policy makers and the private sector of the need to formulate coherent industrial policies that are supportive of SME competitiveness and to provide them with analytical tools for assisting in this process with a view towards enhancing sustainable development.

I. REVIEW OF IMPACT ASSESSMENT METHODOLOGIES FOR ASSESSING INDUSTRIAL POLICIES

This chapter reviews impact assessment methodologies appropriate for assessing the impact of industrial policies on SMEs. It consists of an introduction to the purpose of impact assessments and their use; a review of existing impact assessment methodologies and tools, which details the various components and constraints associated with conducting impact assessments; and an elaboration of how these tools and methods can be used to conduct *ex ante* and *ex post* assessments of industrial policies on SMEs in the ESCWA region.

A. THE PURPOSE OF IMPACT ASSESSMENT

In its broadest sense, impact assessment is the process of identifying the actual or anticipated impacts of a development intervention on those social, economic and environmental factors that the intervention is designed to affect or may inadvertently affect. The purpose of impact assessment is thus to inform and improve decision-making with regard to a specific intervention, whether it be a policy, plan, programme or project.

Impact assessment may take place before approval of an intervention (*ex ante*), after its completion (*ex post*), or at any stage in between. *Ex ante* assessment forecasts potential impacts as part of the planning, design and approval of an intervention. *Ex post* assessment identifies actual impacts realized during and after implementation. Impact assessment is also an important monitoring tool that can help to review and fine-tune aspects of policy or project implementation during its realization so as to improve outcomes. These various uses of impact assessment can assist decision makers in identifying and proposing corrective measures to be taken, if necessary, and in providing information for improving the design of future interventions. A distinction can further be made between three main types of impact assessment:

- *Impact assessment for ongoing learning (“improving impact”)* is meant to support the integration of specific impact indicators into existing management information systems, which makes information immediately available to staff so as to improve the effectiveness of an intervention in meeting its goals;
- *Impact assessment for performance measurement and accountability (“proving impact”)* seeks to provide fuller information than may be available from routine monitoring and evaluation, and often includes consultation and reporting to external stakeholders. This is commonly applied by donor institutions as a means to determine the effectiveness of their programmes;
- *Impact assessment as part of approval and decision-making processes* uses the findings and recommendations of *ex ante* impact assessments, such as environmental impact assessment, as a prerequisite for the advancement of certain types of interventions. These generally involve consultation with both public and private stakeholders and may contain their own *ex post* monitoring mechanisms to ensure follow-up on decisions taken.

Impact assessment can also be thought of as having a vertical and horizontal dimension. Vertically, impact assessment can be applied to interventions that are made at the project, sectoral or policy level. Horizontally, it can be applied by examining a large number of intervention target areas from a certain policy perspective. Horizontal assessments include social impact assessment, economic impact assessment, environmental impact assessment, employment impact assessment, gender impact assessment, and poverty impact assessment.

There has been a significant shift in the orientation of vertically-focused impact assessment. These types of impact assessment were originally confined to projects in which the project cycle was designed to link *ex ante* project appraisal with *ex post* monitoring and evaluation. In the context of developing countries, cost-benefit techniques for project appraisal were first formulated in the 1960s and since then have been

widely disseminated and used in assessing the economic costs and benefits of investment proposals and projects.⁴

In the 1990s there was a major shift from project to policy planning, thanks in part to challenges revealed through the preparation of impact assessments. The shift away from projects was based on their perceived failure to overcome obstacles to development and difficulties associated with the implementation of projects in the absence of an enabling environment. Impact assessment was thus applied to examine the effects of interventions at various stages in the policy cycle from design to implementation and monitoring. This move from projects to policies thus reflected the recognition that the policy environment plays a fundamental role in determining the pattern and pace of development.

By the mid-1990s the focus shifted again from “first generation” policy reforms to “second generation” institutional reforms of the legal, administrative and regulatory functions of government as related to the delivery of good governance. Reform of the legal, administrative and regulatory barriers to doing business and the creation of an enabling business environment are currently priority areas for fostering economic growth and enterprise development.⁵ Furthermore, there is a growing consensus that “aid agencies have a long history of trying to cocoon their projects using free-standing technical assistance, independent project implementation units and foreign experts rather than trying to improve the institutional environment for service provision” and, as a result, donor-led projects have done little to improve services in the short run or facilitate institutional change in the long run in developing countries.⁶ Capacity-building projects seeking to strengthen national institutions and decision-making processes using consultative mechanisms and impact assessment tools have thus increased in importance and in number in recent years. The upstream shift in focus to plans, programmes and policies has also increased the strategic orientation of development planning and the importance of impact assessment in formulating and monitoring government policies.

There has been a similar shift in the horizontal focus of impact assessment. Originally, these assessments focused on economic impacts and used economic cost-benefit analysis, which assesses the impact of an intervention in terms of net economic welfare gains. With the growing recognition of the distributional and environmental impacts of a project or policy intervention, environmental and social impact assessments were added to the set of standard impact assessment methods. Furthermore, while initially applied as stand-alone tools, increasing integration emerged between different types of impact assessment. For instance, the adoption of the Millennium Development Goals and poverty reduction targets has increased the prevalence of conducting poverty and social impact assessments of public policies.⁷ In the context of sustainable development, the importance of examining the social, economic and environmental impacts of an intervention are combined in sustainability impact assessment (SIA).⁸ The elaboration of horizontal impact assessment tools has thus allowed deeper thinking into ways to examine the impacts of policy interventions on various stakeholders, such as small and medium-sized enterprises, women and disadvantaged groups.

B. REVIEW OF IMPACT ASSESSMENT METHODOLOGIES AND TOOLS

There is no single blueprint for conducting impact assessments. For each impact assessment approach, a range of methodologies can be applied. The choice of method depends upon the nature of the assessment, which is influenced by the following:

⁴ S. Curry and J. Weiss, *Project Analysis in Developing Countries* (London, 2000, MacMillan).

⁵ See, for example, World Bank annual reports on *Doing Business*.

⁶ World Bank, *Assessing Aid: What Works, What Doesn't, and Why* (New York, 1998, Oxford University Press and World Bank).

⁷ World Bank, *A User's Guide to Poverty and Social Impact Analysis* (Washington, DC, 2003, World Bank).

⁸ See C. George and C. Kirkpatrick, “Trade and Development: Assessing the Impact of Trade Liberalisation on Sustainable Development”, *Journal of World Trade*, 38, 3, 441-469, 2004; and “Methodological Issues in the Impact Assessment of Trade Policy: Experience from the European Commission's Sustainability Impact Assessment (SIA) Programme”, *Impact Assessment and Project Appraisal*, 24, 4, 325-334, 2006.

- Institutional and policy environment within which the assessment is to be undertaken, including the main authorities, agencies and stakeholders likely to be involved in the assessment process, and other policies, plans or programmes that may need to be taken into account;
- Characteristics of the intervention to be assessed, such as the stage of the intervention in the project cycle (*ex ante*, monitoring or *ex post*), and the geographical coverage of the assessment;
- Resources available for the assessment, namely, staffing resources, the availability of relevant and reliable data, and the time constraints within which the assessment must be completed;
- Target for the intervention and associated level of analysis, for instance, households, enterprises, industrial sectors or the national economy.

Based on these conditions, an impact assessment may draw upon any or all of the following:⁹

- *Quantitative statistical methods* involving baseline studies, the precise identification of baseline conditions, definition of objectives, target setting, rigorous performance evaluation and outcome measurement. Such methods can be costly, limited in the types of impacts that can be accurately measured, and may pose difficulties for inference of cause and effect. Some degree of quantification may be necessary in all impact assessments in order to evaluate the success of the intervention and the magnitude of any adverse effects;
- *Qualitative analysis* suitable for investigating more complex and/or sensitive types of social impacts, such as intra-household processes, policy issues and investigation of reasons for statistical relationships and policy implications. These methods generally require high levels of skill and may be relatively costly. Some degree of qualitative interpretation may be necessary in all impact assessments in order to evaluate the causes of impacts that have been observed;
- *Participatory approaches* suitable for the initial definition or refinement of the actual or potential impacts that are of concern to stakeholders, including questions to be asked and the appropriate frameworks and indicators to be used. Such approaches can contribute to all types of assessment, and are particularly suited to exploratory low budget assessments and initial investigation of possible reasons for observed statistical relationships. They offer a means of involving stakeholders in the research, learning and decision-making processes. These methodologies also require a certain level of skill, depending on the issues to be addressed and ways in which they are integrated with other methods. Some degree of stakeholder participation is likely to be necessary in all impact assessments in order to achieve a good understanding of stakeholder perceptions of impacts.

While techniques vary according to the nature of the intervention and the purpose of the assessment, the same methodological framework is normally used when preparing an impact assessment. This framework involves the following components, which may be iterative in nature:¹⁰

- *Screening*: allows for the collection of basic information about the intervention and the context in which it takes place; in instances where the preparation of an impact assessment is triggered by a set of conditions, screening allows for a preliminary assessment of those conditions to determine

⁹ These three approaches are discussed in detail in C. Pinder, C. Kirkpatrick and S. Mosedale, "Handbook to Accompany Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)", a study conducted for the Department for International Development (DFID) by WISE Developments Ltd, 2005.

¹⁰ These components are largely based on those presented in D. Hulme and C. Kirkpatrick, "Basic Impact Assessment at Project Level", Enterprise Development Impact Assessment Service, 2003, p. 6. (www.enterprise-impact.org.uk).

whether an impact assessment is necessary. For policies, plans and programmes, this would include an elaboration of the policy framework in which the intervention is taking place;

- *Scope*: determines which impacts should be investigated in the assessment and focuses the range of issues to be analysed;
- *Targets*: identify the goals for achievement against which impacts will be assessed; these may be taken from the planning documents or from widely accepted objectives appropriate for the type of intervention;
- *Indicators*: define the variables upon which each impact is to be measured in relation to its target; this component should also elaborate on data collection methods and establish who will be responsible for their collection and compilation;
- *Identification of potential impacts*: identifies the potentially significant planned and unplanned impacts that should be considered within the scope of the assessment;
- *Stakeholder identification*: is conducted to identify those social groups likely to be affected by planned or unplanned impacts, as well as other interested parties (such as government bodies);
- *Stakeholder involvement*: frames how stakeholders will be engaged in the assessment process; this may include involving stakeholders in refining the scope of the assessment and in the identification of unplanned impacts, as well as the review of targets, findings and mitigating measures;
- *Assessment of impacts*: determines what impacts have occurred (or can occur) relative to baseline conditions by examining their direct and indirect causes and their importance in relation to targets; specific impact tests may be conducted to determine the effects of an intervention on a specific group or sector;
- *Quantification of impacts*: assesses impact magnitude where practicable, in relation to indicators and targets; a gap analysis may also be conducted to elucidate the significance of impacts so as to better inform the process of formulating corrective measures;
- *Corrective measures*: propose what steps can be taken to eliminate or mitigate any significant adverse impacts or to compensate for them; proposals may also include alternatives on ways to mitigate negative impacts or enhance positive impacts where applicable;
- *Policy learning*: identifies lessons for the planning and design of future interventions;
- *Reporting*: documents the findings of the assessment in a manner that is clearly understandable to those who will use them; it also identifies uncertainties, details the reliability of findings, and provides for facilitated public access to the findings;
- *Dissemination of findings*: ensures the transparency of the impact assessment process and ensures access to the evaluation findings by stakeholders in a way that supports decision-making and learning; dissemination also allows for consultation with stakeholder and agreement on the final report as well as follow-up actions.

The structure of an impact assessment report varies depending on whether the intervention is a policy, plan, programme or project. However, impact assessments normally begin with an overview of the policy framework and a definition of the scope of the intervention targeted for analysis. Indicators and methods for assessing impacts in view of targeted objectives are also established. The baseline data are subsequently

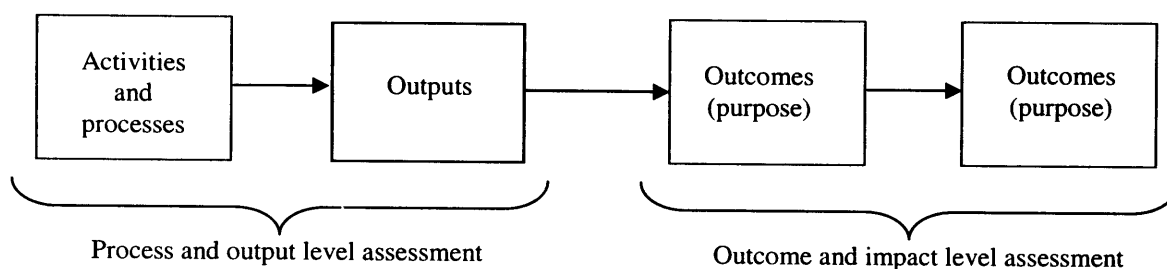
presented, followed by the identification and analysis of planned and unplanned impacts. Corrective measures or alternatives are then proposed. Recommendations for follow-up and lessons learned are also often provided.

1. Causal chain analysis

Impact assessment is intended to assess the impact of specific interventions on the goals that have been set for the intervention. In most cases there will be a hierarchy of objectives for the intervention, where intermediate targets are a stepping stone to achieving final goals. Using causal chain analysis, it is possible to interpret how actions linked to a policy intervention would lead to a change in behaviour, which in turn would result in a change in the target outcomes and contribute to achieving the intended policy goals. These four stages can be represented as a causal chain of linked stages, as illustrated in figure I.

The purpose of causal chain analysis is thus to identify the significant cause-effect links between the intervention and its effect in terms of activities, outputs, outcomes, and impacts. Significance criteria have to be formulated and used to eliminate non-significant effects and terminate further analysis beyond this stage in the causal chain.

Figure I. Causal chain assessment stages



Source: C. Pinder, C. Kirkpatrick and S. Mosedale, *Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)*, 2005, p. 12.

The causal link between the intermediary effects and the ultimate impact is often difficult to prove for an individual intervention. This is often referred to as an attribution problem. The problem emerges because, as one progresses up the path to final impacts in terms of goals, the bounds of uncertainty increase and the evidence of the causal chain between cause and effect becomes more tenuous. Given these constraints, it is often appropriate to attempt assessment at each of the four stages of the assessment process. As such, an assessment at the following levels may be conducted:

- *Activities* level examines the process by which the activities are implemented, and includes testing compliance with procedures (What did we do? How did we do it?);
- *Outputs* level examines the results of the activities (What changed as a result of the activities or interventions?);
- *Outcomes* level assesses the results and outputs in terms of the purpose of the intervention (Did the changes in outputs have the desired effects in terms of the targets set for the original intervention?);
- *Impacts* level assesses the outcomes in terms of the initial goals set for the intervention (Did the original intervention contribute to society's development goals?).

The complexity of such chains provides the assessor with a range of choices about which link (or links) to focus on. In doing so, it is useful to distinguish between two main approaches in this regard. The *goal approach* seeks to get as far down the impact chain as feasible (in terms of budgets and techniques) and to assess the impact on the ultimate goal of the intervention. The *output approach* focuses on the beginning

of the chain and in particular on changes in outputs. In each case, similarities can be drawn with the Logical Framework (Log Frame) approach, which uses a hierarchy of levels for conducting an assessment of activities, outputs, outcomes and impacts to determine the effectiveness of an intervention in realizing its expected accomplishments.

2. Assessment methods

Causal chain analysis is the basic method for assembling and presenting the evidence which informs assessment preparation. A wide range of assessment methods exist which might be used to elaborate causal chains and the empirical estimation of impacts. However, it is unlikely that a single type of method can satisfactorily meet all assessment requirements and thus a package of methods is often used, with each package varying according to the characteristics of the intervention being assessed and the context in which the assessment is being carried out. Some of these methods are briefly reviewed below.¹¹

- *Analytic methods* are usually more theoretically-based than empirically-based tools of analysis. They are typically founded on behavioural assumptions and derive findings by relying mainly on deductive logic. They are helpful in constructing successive links in causal chains and in inferring directions of change in intermediate effects along these chains. The methods used are transparent in the sense that the process by which the findings have been reached is usually explicit. The limitations are that, in the absence of sufficient empirical reference points, the underlying assumptions of the analysis may be too general and unrealistic, some of the projected impacts may be incorrectly identified, and the likely size and significance of impacts usually cannot be established. However, if supported by appropriate forms of empirical analysis, data flow analysis or gap analysis, a number of deficiencies may be considerably reduced or overcome;¹²
- *Modelling methods* are based on structured representations of systems. Each model has its own analytic structure and, to this extent, this approach shares the same strengths and weaknesses as the analytic methods described above. Some models are essentially theoretical. However, most models are empirical in the sense that they use data (mainly in a quantitative form) and predict likely future impact outcomes, or explain previously observed impact outcomes, based on these data. While this might suggest that models are superior to analytic methods, this depends on the relevance and quality of both the model and the data that are used;
- *Data-based (statistical estimation) methods* use time series and/or cross-sectional data to test for possible causal links. In particular, they test for a statistically significant relationship between specified parameters of a proposed policy intervention and changes in the values of one or more of the selected indicators. An advantage of these types of methods is that they provide opportunities to test empirically a specific hypothesis about the nature of cause-effect links and to establish their statistical significance. Furthermore, if the data used have been carefully collected from a sufficiently large and representative sample, the results may be generalized to different geographic and socio-economic aggregates. The findings may then be valuable in their own right or may be used in conjunction with other assessment methods in enriching descriptive case studies and/or in assisting to make expert judgements;

¹¹ This section draws largely from the review of techniques presented in C. Kirkpatrick, N. Lee and O. Morrissey, "WTO New Round: Sustainability Impact Assessment", Report to the European Commission (Impact Assessment Research Centre, University of Manchester, 1999) (www.sia-trade.org).

¹² While sometimes part of the impact assessment analytical process, gap analysis may also take place prior to or following the preparation of an impact assessment as a means to complement impact analysis findings by identifying the components that are lacking, yet needed, in order to achieve targets.

- *Descriptive (case study) methods* are more heterogeneous than the other types of methods. In most cases, these methods make use of both quantitative and qualitative data. They tend to focus upon a particular sector (such as mining or fishing), a national, regional or local community, and/or a particular socio-economic group (especially disadvantaged groups, such as SMEs). In most cases they contain *ex post* assessments. A difficulty with descriptive case studies is that their methodology is often insufficiently developed or explained, and at times they do not sufficiently examine the causal chains that link a measure to its eventual outcomes. However, more empirically-based studies are being produced that overcome these difficulties. For example, careful use of inductive methods for investigation can strengthen understanding of cause-effect relationships and provide good quality information to assess policy impacts on disadvantaged groups. A combination of descriptive cause-effect analysis and statistical estimation tools can provide a quantitative and qualitative analysis of impacts on a local community. Descriptive impact assessment methods can be particularly helpful in understanding the variations in impacts at more disaggregated levels—sector, area and socio-economic group—especially where the use of more qualitative assessments are appropriate;
- *Expert opinion and consultative methods* are frequently used during impact assessment, although they are possibly the least publicized assessment methods. Where expert opinions are used, it is important that the evidence and analysis upon which these options are based are made explicit, substantiated and justified. Consultation with relevant stakeholder groups is also an important source of evidence on impacts, whereby the stakeholders can provide expert opinion on the potential or actual impacts.

When applying these methods during the preparation of an impact assessment, consideration should also be given to the following issues:

- *Time-dependency*—might impacts that are small (or large) at the time of the assessment increase (or decrease) with time?
- *Changing or abnormal conditions*—how secure is an observed impact in relation to economic or environmental shocks and other conditions that may vary from those existing at the time of the assessment?
- *Cumulative effects*—would a small effect become significant if the intervention or its effects were replicated?
- *Remote effect*—might unplanned impacts be occurring beyond the boundaries of the study area or community?
- *Second order effects and interaction*—might indirect, unplanned impacts be occurring that are not obviously associated with the intervention?

The last of these issues can entail a complex investigation of the interlinkages between social, economic and environmental impacts. A fully integrated impact assessment of this nature would be required if potentially important interactive effects are identified, within the scope of the assessment or, subsequently, as impacting sustainable development.¹³

¹³ For a review of the direct and indirect impact linkages, as well as a mapping of their interactions with regulatory and feedback impacts associated with integrated impact assessment of interventions directed towards sustainable development, see C. Kirkpatrick, N. Lee and O. Morrissey, "WTO New Round: Sustainability Impact Assessment", 1999, p. 12.

3. Indicators

When conducting an impact assessment, it is essential to specify what the intervention is intended to achieve. This will determine the criteria to be used in assessing the impacts. Impact indicators are used to assess the contribution of an intervention towards achieving specified targets or strengthening the process for achieving those targets and goals. When supported by sound data, the indicators provide information for assessing potential effects, monitoring progress and demonstrating results. The following general criteria should guide the selection of indicators. Namely, they should be:

- Limited in number, but in aggregate they should be comprehensive in their coverage;
- Appropriate to the level at which the appraisal, monitoring and evaluation is being conducted;
- Able to provide evidence in a timely, transparent and comprehensible manner;
- Applied consistently to different interventions.

Not all indicators will be quantifiable, and a judgement will need to be made as to the significance of the effect that is being recorded. These judgements will be informed by established norms and standards, levels of public concern and, where available, scientific knowledge. The sources from which the evidence on performance indicators is obtained will vary, and are likely to include published statistics, informed expert opinion, and the results of consultations and stakeholder analysis.

In cases where impacts cannot be quantified, a common numeraire can be formulated to facilitate analysis of the significance of the impact. This can be done by establishing a scale of significance, such as a five point scale (-2, -1, 0, +1, +2) or by using symbols, such as arrows of different sizes, to denote very significant (positive and negative), significant (positive and negative) and nonsignificant impacts.

Indicators need to be selected for use at each of the four levels of assessment to ensure clarity of reasoning during causal chain analysis. The number of indicators used should be limited, however, and, where possible, a standard set of core indicators should be selected to allow comparisons to be made across different assessment studies. Consultation on the choice of indicators should be an integral part of the selection process.

4. Consultation procedures and stakeholder analysis

Consultation with stakeholders is an integral part of impact assessment. In addition to providing valuable information during the screening and assessment stages, consultation contributes to strengthening the governance component of impact assessment by requiring decision makers to be transparent and accountable for their choices.

Identifying who is affected, and to what extent, is critical to understanding the effects of an intervention. Stakeholder analysis can be used to identify the groups that are affected, and how, why and to what extent they are impacted. It can also help in understanding the relations between stakeholders, including any conflict of interest and differences in expectations between the affected parties. The response of those affected by the intervention will in turn inform the assessment of the significance and direction of the impacts. This will serve to improve the calibre of the assessment as well as contribute to the formulation of corrective measures for avoiding or mitigating adverse effects.

C. INDUSTRIAL POLICY IMPACT ASSESSMENT

An efficient market economy that facilitates equal access to markets and economic resources is regarded as an important engine for economic growth. The role of government policy is to provide an environment in which markets work well and to ensure that the outcomes are consistent with national development goals of pro-poor growth and sustainable development. Industrial policies have the common

objective of facilitating industrial sector growth, which must contribute to overall pro-poor economic growth and sustainable development.

This study is concerned with the industrial policies that governments undertake that may influence the development of SMEs. Such policies generally entail changes in one or more of the following areas, namely changes to the legal and regulatory environment (rule of law, compliance and enforcement provisions); changes in the structure of incentives (such as taxation instruments, access to subsidies and zoning arrangements for targeted development of certain sectors); and/or changes in institutional and organizational frameworks that affect the design and implementation policies and programmes concerned with the regulation, promotion and representation of businesses (including access to information about standards or associated requirements).

The importance of specifically examining the impact of industrial policies on SMEs is largely due to scale. This is because the impact on SMEs of compliance with regulatory measures may be differentiated from that of larger firms in terms of time, cost and effort. This understanding has led *ex ante* impact assessment of industrial policies to become an integral part of regulatory impact assessment (RIA), which is used in a growing number of countries to assess the potential impact of new regulatory measures during their process of formulation and adoption. For instance, the European Commission's impact assessment methodology assesses the *ex ante* impacts of all policy interventions on sustainable development by assessing its potential economic, social and environmental impacts. The United Kingdom specifically requires that all regulatory impact assessments of planned regulatory instruments include a Small Firms Impact Test, in appreciation of the fact that "most policies affecting business will bear on small businesses more heavily than on large business, even where your policy seeks to treat them equally".¹⁴

From the *ex post* perspective, it is important to assess the effectiveness of industrial policies in achieving their targeted goals. Indeed, most governments have recognized the importance of pursuing economic policies that support industrial development, and many of these emphasize the important role that SMEs play in creating employment and income opportunities for their citizens. Impact assessments of existing industrial policies are thus necessary to determine their state of effectiveness in meeting policy goals with a view to retooling policy directives and implementing instruments. Assessing effectiveness, however, is largely dependent on identifying a clear set of indicators and consulting with beneficiaries that are most affected—positively or negatively—by the existing policy.

A proposed methodology for conducting *ex ante* and *ex post* impact assessments of industrial policies on SMEs is the IIAA,¹⁵ which is largely based on the use of causal chain analysis assessment tools. The IIAA provides a methodological framework that can accommodate different types and levels of public policy interventions by facilitating assessment of impacts at the level of enterprise performance and at economy-level economic growth and sustainable development. The approach is designed to cover regulatory policies, business environment-related policies, technology policies and employment policies. The outcomes of these integrated assessments are of interest and use to policy advisers, decision makers and impact assessment practitioners since they are intended to be practical and sufficiently flexible for application in a range of different contexts and with varying resource constraints. At the same time, the approach has the capacity to provide clear and timely information to decision makers on the expected or actual impacts of industrial policy interventions on the SME sector.

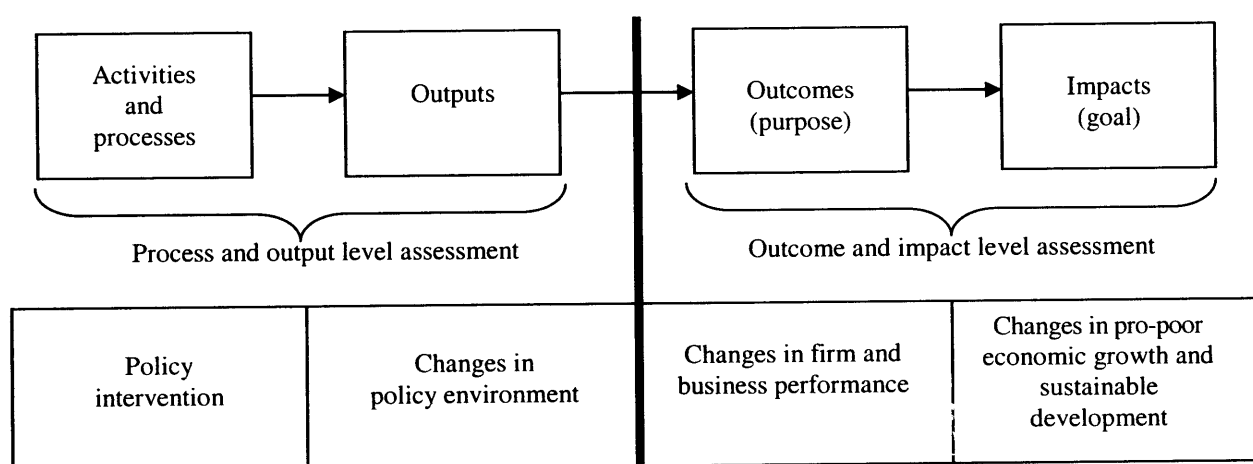
¹⁴ Government of the United Kingdom, Small Business Service Better Regulation Team, "Small Firms Impact Test: Guidance for Policy Makers", November 2005, p. 1.

¹⁵ The Integrated Impact Assessment Approach (IIAA) was developed for DFID; see C. Pinder, C. Kirkpatrick and S. Mosedale, *Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)*, 2005, a study conducted for DFID by WISE Developments Ltd.; and *Handbook to Accompany Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)*, 2005.

1. Stages of analysis and assessment

As noted above, impact assessment is applied at different stages in the causal chain from the initial policy intervention, which examines the activities and processes by which those activities are implemented, to the outcomes and final goals. A mapping of the policy components associated with causal chain analysis at its various stages is elaborated in figure II. This forms the basis for applying the IIAA to industrial policy assessment. The same assessment methods applied to support cause chain analysis are also applicable when applying the IIAA to industrial policies.

Figure II. Assessment stages and levels of analysis for industrial policy interventions



Source: C. Pinder, C. Kirkpatrick and S. Mosedale, *Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)*, 2005, p. 12.

An assessment of the impact of an industrial policy on the competitiveness of SMEs should thus begin with an examination of the policy intervention and its effects on the policy environment. The outcome of the industrial policy is dependent upon the effectiveness of the intervention to change the environment in which firms operate, particularly in a liberal economic policy environment. This change can in turn influence the performance of SMEs positively, negatively or with no effect. The scale of this outcome effect determines the influence that the impact of the policy intervention has on achieving its development goals.

2. Selection of indicators

Indicators contribute to better decision-making by providing evidence on expected or actual results of a policy intervention. To allow for comparative analysis of the impact of separate policies and to ensure consistency in the application of the IIAA, it is proposed that, where possible, a standard set of core impact indicators is used. The indicators that are used in practice will be influenced by the availability and quality of the measurement data that are available, and an informed judgement will need to be made on the consistency between the definition and meaning of the core indicators and the actual measure that is used.¹⁶

An illustrative listing of activity, output and outcome indicators as they relate to the first three stages of causal chain analysis for assessing the impact of industrial policies on SMEs is provided in table 1. The goal (impact) indicators, which are common to all types of policy interventions (including those listed in table 1), are provided below with elaboration on how they relate to industrial policies:

¹⁶ Further information on indicators can be found on the Enterprise Development Impact Assessment Service website: <http://www.enterprise-impact.org.uk>.

- *Economic goals*—may seek to improve national competitiveness, employment levels or foreign currency reserves through increased foreign direct investment;
- *Social goals*—may focus on the use of SMEs for increasing income generation for households living below the poverty line or improving gender composition in employment figures;
- *Environmental goals*—may seek the sustainable use of natural resources, better waste management systems or the reduction of water or air pollution;
- *Governance goals*—may be oriented towards improved public-private sector dialogue, greater transparency and accountability, or a reduction in rent-seeking and corruption.¹⁷

Policy interventions that serve to impact positively these goals contribute to the achievement of sustainable development.

3. Consultation

As highlighted in the introduction, the current thinking about industrial policy is promoting a new model that is based on a strategic partnership between the public and private sector. Strategic coordination between firms and governments is important to overcome imperfect information available in the marketplace and to realize effective policies.

The use of impact assessment tools and consultation mechanisms is a fundamental component of this new approach to industrial policy-making. Chambers of commerce, business associations and private sector syndicates should thus be actively engaged through the policy formulation process. In doing so, however, care must be taken not only to solicit the views of big businesses, but also those of small and medium-sized business owners that may have different perceptions and concerns regarding proposed and existing policies. Consultation is thus not only an important step in assessing the impact of industrial policies on SMEs, but a necessary and fundamental component of the policy-making process itself. The Small Firms Impact Test applied in the United Kingdom is strongly based on the use of consultation as a means to solicit the concerns of small enterprises with regard to a proposed regulation so as to determine the potential scope of an impact and identify possible mitigation measures should they be needed.

4. Conclusion

The practice of assessment of the outcomes and impacts of industrial policies on SMEs is in its infancy and needs to be tested in a variety of contexts. The IIAA framework is designed to be sufficiently flexible and practical in nature for application in different country contexts and at different intervention levels. It is proposed, therefore, that the suggested methodology be used to prepare impact assessments of policies, plans and programmes that can influence the productivity and competitiveness of SMEs in ESCWA member countries.

¹⁷ Based on goals identified in C. Kirkpatrick, N. Lee and O. Morrissey, "WTO New Round: Sustainability Impact Assessment", 1999.

TABLE 1. SAMPLE INDICATORS FOR ASSESSING THE IMPACT OF INDUSTRIAL POLICIES ON SMES

Activity (What policy was adopted?)	Output indicators (What changed?)	Outcome indicators (How did SME sector performance change?)
Business laws and regulations (including business registration procedures, financial disclosure requirements, bankruptcy and dispute resolution mechanisms)	<ul style="list-style-type: none"> • Number of business licensing procedures • Time for securing licence • Time to settle dispute 	<ul style="list-style-type: none"> • Business formation levels • Saving from reduced administrative costs • Formalization of informal sectors
Trade and export policies, laws and regulations (including import quotas, import licences, non-tariff barriers to trade, customs reforms, trade facilitation measures)	<ul style="list-style-type: none"> • Number of non-tariff barriers to trade • Access to less expensive primary and intermediate goods 	<ul style="list-style-type: none"> • Export and import levels • Ability to access new markets • Diversification of goods and services
Technology and innovation policies (including performance standards, industrial modernization schemes, business-to-business knowledge transfer, intellectual property rights)	<ul style="list-style-type: none"> • Availability of quality infrastructure • Number of joint ventures • Number of patents 	<ul style="list-style-type: none"> • Product quality • Product diversification • Manufacture of higher value-added outputs • Productivity levels
Environment and public health policies, laws and regulations (including licensing, pollution standards, efficiency targets, compliance certification, monitoring, enforcement, reporting requirements)	<ul style="list-style-type: none"> • Amount of investment in cleaner production processes • Number of certified companies 	<ul style="list-style-type: none"> • Environmental performance • Product quality • Firm competitiveness
Investment policies (including industrial zones, special economic zones, investment incentives such as tax credits and preferential financing mechanisms)	<ul style="list-style-type: none"> • Access to environmental and transport infrastructure • Access to financing 	<ul style="list-style-type: none"> • Business formation • Investment levels
Finance and credit policies and regulations (including access to capital, credit, financial incentives, depreciation facilities)	<ul style="list-style-type: none"> • Shift to formal sector financing by SMEs • Increase in number of start-ups 	<ul style="list-style-type: none"> • Investment levels • Productivity rates • Output levels
Taxation policies, laws and regulations (including income taxes, profit taxes, value-added tax, deferred taxation schemes, tax credits)	<ul style="list-style-type: none"> • Simplification of taxation system 	<ul style="list-style-type: none"> • Profitability • Entry of firms into the formal sector
Labour policies, laws and regulations (including job security, occupational health and safety, minimum wage requirements)	<ul style="list-style-type: none"> • Number of registered workers • Workplace safety 	<ul style="list-style-type: none"> • Employment levels • Labour productivity
Education and training policies (including vocational training, technical training, incentives for workplace skills development)	<ul style="list-style-type: none"> • Number of hired graduates • Employee retention rates 	<ul style="list-style-type: none"> • Labour productivity • Employment levels

Source: Adapted from S. White, *Donor Approaches to Improving the Business Environment for Small Enterprises*, 2004; and C. Pinder, C. Kirkpatrick and S. Mosedale, *Guidelines for Assessing the Impact of Enabling Environment Programmes: An Integrated Impact Assessment Approach (IIAA)*, 2005, and *Handbook to Accompany Guidelines for Assessing the Impact of Enabling Environment Programmes*, 2005.

II. ACCESS TO INFORMATION ON STANDARDS AND ITS IMPACT ON SME COMPETITIVENESS

Overcoming information externalities is a challenge facing most SMEs, and hence addressing this market failure through policy interventions can have significant implications for improving the competitiveness of SMEs and achieving sustainable development. SMEs seeking to manufacture for the local and international market need information on local procedures, such as licensing requirements and attestations on rules of origin and export controls, as well as information on foreign markets, including country-specific regulations, conformity assessment requirements and market preferences. Although information on market opportunities is important, access to information on environmental, health and safety regulations and industrial standards is essential to ensure that such measures do not serve as technical barriers that can impede the sale and marketability of goods in the targeted foreign markets. Access to this type of information is particularly difficult for SMEs in developing countries, where bureaucracy remains cumbersome and access to information can be costly, confusing and time-consuming. Inadequate access to information on standards can also deter the innovation and investments needed to achieve quality improvements and certification requirements, which could contribute to enhancing SME competitiveness.

A. FRAMEWORK FOR EXAMINING POLICIES INFLUENCING ACCESS TO STANDARDS

There are well over a million standards and regulations adopted worldwide. Member States of the World Trade Organization (WTO) had published 880,606 by 2003.¹⁸ The International Standards Organization (ISO) had developed 16,455 standards by the end of 2006.¹⁹ The American Society for Testing and Materials (ASTM), now called ASTM International, has adopted over 12,000 standards covering the metals, petroleum, construction and environmental sectors.²⁰ Hundreds of other agencies and organizations also adopt mandatory and voluntary standards at the national, regional and global levels. The process of accessing existing standards and monitoring the development of new standards has thus become an onerous task for developing countries, and particularly for SMEs.²¹

In view of the implications that access to information on standards has on trade facilitation and international competitiveness, members of the WTO formulated a Code of Good Practice for the Preparation, Adoption and Application of Standards, which constitutes annex 3 to the WTO Agreement on Technical Barriers to Trade (TBT). The Code echoes the main tenants of the TBT Agreement through provisions that are directly applicable to standards-setting institutions. These include respect for the non-discrimination principle, the commitment that standards should not create unnecessary barriers to trade, deference to international standards as appropriate, support for harmonization, avoidance of duplication of efforts by different standardization bodies serving the same country or region, and support for the formulation of standards based on performance requirements, rather than descriptive characteristics or design components. Governmental and non-governmental organizations are able to subscribe to the Code as a means to demonstrate their commitment to its principles.

The Code also requires that member institutions publish their work programme at least every six months through the ISO Information Network (ISONET) in order to inform others of standards in the pipeline. Notification and transparency provisions must also be followed, so as to allow WTO Member

¹⁸ World Trade Organization, *Annual Report 2005*, pp. 123-127, available at: http://www.wto.org/English/res_e/booksp_e/anrep_e/world_trade_report05_e.pdf.

¹⁹ International Standards Organization, "ISO in Figures for the year 2006", available at: http://www.iso.org/iso/figures_2006.pdf.

²⁰ ASTM International, "Standards," http://www.astm.org/cgi-bin/SoftCart.exe/NEWSITE_JAVASCRIPT/DOMnewstandards.shtml?L+mystore+crou7981+1185992542, accessed July 2007.

²¹ ISO has developed an action plan targeting its 110 developing member countries with the primary objective to improve access to information on standards by increasing awareness, building capacities of member institutions, and increasing cooperation. See ISO, *ISO Action Plan for Developing Countries 2005-2010* (2004).

States to comment on draft standards prepared by other member states prior to their adoption. However, national WTO Enquiry Points, which facilitate access to standards prepared and under development by other WTO member States, are intergovernmental arrangements that are not directly accessible by private sector representatives. Furthermore, identifying the relevant measures required in the destination country takes time and understanding of product specifications and production processes. The full text of a standard must also normally be purchased, since standard-setting organizations generate income from their sale.²²

Although substantial policy efforts have been directed towards harmonizing standards in order to simplify business operations and facilitate trade, harmonization remains elusive. Furthermore, while efforts to strengthen economic integration are supportive of sustainable development objectives, it is not necessarily always appropriate to harmonize all measures in view of national and regional differences. Some regional initiatives have sought to simplify the harmonization process and improve the dissemination of information on voluntary standards, such as the European New Approach.²³ However, as in other parts of the world, the adoption and dissemination of technical regulations remains disbursed among several agencies responsible for different regulatory areas (such as food safety, packaging and recycling). As such, SMEs in developing countries still find it difficult to identify, access and understand all the legislation with which compliance is required in a targeted export market. SMEs thus become dependent on intermediaries for accessing foreign markets, or simply concentrate on one export market where they have developed expertise. This reduces the profitability of their export ventures and reduces the diversification of their exports. Differences in standards between countries and inadequate systems to access information about these differences will thus continue to present obstacles to trade in the absence of effective policy measures and implementing mechanisms that facilitate access to information and services for exporters in developing countries, and particularly for SMEs.

These challenges are keenly recognized by ESCWA member States seeking to enhance the competitiveness of SMEs. For instance, the Small and Medium Size Enterprises Development Unit at the Egyptian Ministry of Finance articulated the need for regulatory reform among the main pillars of its SME policy development programme. The pillar aims “to reduce the cost of compliance with regulations covering enterprise establishment, operations, and growth”, with specific reference made to the difficulties facing micro, medium and small enterprises as they seek to comply with the differing directives of several governmental entities and overcome the challenge of the poor coordination that exists between relevant government institutions.²⁴ Yemen’s third five-year plan seeks to increase industrial exports by improving the ability of its products to meet international standards and to benefit from the opportunities and rewards from the Arab free trade agreement and the WTO, and targets several SME sectors for achieving this goal.²⁵

Improving access and understanding about standards is thus a common concern of industrial policymakers throughout the ESCWA region. These policies should be realized, however, through complementary initiatives that not only assist firms to access information about required standards, but also to understand their technical specifications and secure the information needed to achieve compliance.

B. LEBANESE CASE STUDY

Lebanon is no stranger to industrial policy. The macroeconomic climate has not been favourable in the face of an uncertain political and security environment, and market forces have often failed to yield

²² For instance, ASTM derives approximately 75 per cent of its income from the sale of publications, most of which are of its standards, available at: http://www.astm.org/cgi-bin/SoftCart.exe/FAQ/whatisastm_answers.html?L+mystore+crou7981+1185974949#anchor2.

²³ European Commission, Enterprise and Industry, “Harmonised Standards”, available at: http://ec.europa.eu/enterprise/newapproach/standardization/harmstds/index_en.html.

²⁴ Government of Egypt, Ministry of Finance, Small and Medium Enterprise Development Unit, “Policy Development”, available at: http://www.sme.gov.eg/English/policy_development.htm.

²⁵ “Yemeni ministry reports on five-year plan for economic growth”, *Yemen Observer* website, Sana’a (in English), 21 January 2006.

optimum outputs, thereby providing grounds for public interventions in the form of horizontal or vertical corrective measures. Recent economic performance has not been promising, with gross domestic product (GDP) growth rates either stagnating in 2005 or contracting by about 6 per cent the following year, owing in large part to the hostilities that Lebanon suffered during the summer of 2006. Despite these difficulties, structural economic reforms to improve the Lebanese business environment continue. The approach is based on two pillars, namely, trade liberalization and economic modernization. To this end, free trade agreements have been signed and an ambitious legislative reform agenda was adopted to modernize the legal infrastructure and associated policy framework. Government interventions have succeeded in places, but fell short in others. Doing business in Lebanon remains expensive and burdensome, which reduces incentives to expand production and exports, particularly among SMEs.

This case study summarizes the *ex post* and *ex ante* impact assessments that were conducted in consultation with local stakeholders to examine national policies, programmes and institutions that seek to improve access to information on standards as a means to improve the business environment and enhance SME competitiveness in Lebanon.

1. Policy framework

Policies, plans and programmes that seek to improve access to information on standards have the dual characteristics of being industrial and trade-related policy measures. The ultimate purpose of these interventions is to enhance national competitiveness through economic modernization and trade liberalization. SMEs, as the primary actors engaged in the production, trade and export of industrial goods in Lebanon, are central to the success of these policies.

The trade agreements signed by the Government of Lebanon with major trading partners in recent years explicitly and implicitly address the need to improve access to information on standards and attest to the Government's commitment to this goal. For instance, the Association Agreement between Lebanon and the European Union (EU) was signed in June 2002 and entered into force on 1 April 2006. Under industrial cooperation (article 46), the Agreement calls for accessing business networks within the EU and encouraging the development of SMEs by making information and support services available. The Agreement makes explicit references to access to information in article 47, in which it addresses accessing information on European investment regimes. The exchange of information via information technology modules on regulatory matters, standardization, conformity tests, and the like is encouraged in article 53. With respect to standards, article 48 calls for cooperation with the objective of reducing divergence in standardization, essentially calling for greater harmonization with the EU. Cooperation, exchange of information among experts, and technical assistance are also promoted in customs matters and consumer protection, with explicit reference to the establishment of systems of mutual information (rapid alert systems) on dangerous food and industrial products (articles 56 and 58). The Quality Infrastructure Project, administered by the Ministry of Economy and Trade with funding from the EU, can also be considered among the instruments adopted to implement the policies, plans and programmes laid out in these articles.

Lebanon also agreed to adhere to the European Neighbourhood Policy and began negotiating an action plan in March 2005, which was signed on 12 June 2006. The action plan addresses standards and trade-related technical barriers, but with an approach based on harmonization and convergence of standards and legislation with the EU, with little reference to access to information *per se* or information sharing as explicitly stipulated in the Association Agreement. However, the plan includes projects to increase the delivery of financial and technical assistance to Lebanon through mechanism designed to enhance the competitiveness of Lebanese SMEs and increase their export potential.

Lebanon signed a free trade agreement with the European Free Trade Association (EFTA) after negotiations concluded in June 2004. The Agreement complements the Association Agreement with the EU and serves as a framework to promote trade with Lebanon's largest trading partner (Switzerland). The Agreement covers trade in industrial goods, including fish and other marine products, as well as processed

agricultural products. Bilateral agreements covering agriculture will follow. Lebanon is also a member of the Greater Arab Free Trade Area (GAFTA) and signed a preferential trade agreement with the Gulf Cooperation Council (GCC) in May 2004, which was ratified in June 2006. Lebanon ratified a trade agreement with the Syrian Arab Republic to encourage economic cooperation between the two countries in 1994, which was followed by an agreement in 1998 to reduce progressively tariffs on industrial products.²⁶

Lebanon is currently negotiating accession to the WTO. The process began when Lebanon applied for accession in January 1999. After adopting a master plan in 2000, the memorandum of foreign trade regime was submitted in May 2001 and is being followed by a number of working party meetings and adjustments to the legal framework. The agenda of work for 2007 includes the finalization of bilateral talks as well as the enactment of a list of laws to align the Lebanese legislative infrastructure with the various WTO requirements, such as the sanitary and phytosanitary (SPS) and TBT agreements. It is expected that this will eventually include the enactment of a food law, a technical regulation and conformity assessment law, an animal and plant quarantine law, and the establishment of WTO enquiry points, once the political situation in Lebanon stabilizes.

Box. Facilitating access to information in Lebanon

The Lebanese Government is working on improving access to information with respect to public procedures and administrative requirements. The Office of the Minister of State for Administrative Reform (OMSAR) set up an online information portal in January 2003, along with a hotline and call centre to simplify access to governmental procedures and provide users with a wide array of information. The Informs Portal is user-friendly with a well-designed hyperlink system and an efficient search engine that is accessible in three languages at <http://www.informs.gov.lb>. There are almost 4,550 administrative transactions captured on the website,²⁷ out of which 1,700 deal with ministries while the rest relate to local government. While each information request (on registering a business, applying for a passport, securing a work permit) may require use of more than one form, all forms and procedures (including fees and time needed to process paperwork) are available on the website. The portal also includes a comprehensive directory of all public agencies, along with contact information, e-mail addresses and a description of its mission and role.

After the portal was established, concerted efforts were made to raise awareness about the service through a public information campaign that increased the number of users of the service fivefold during a six-month period. The sizeable jump in the usage illustrates the importance of outreach and awareness-raising as an integral part of policy effectiveness, in particular with respect to information accessibility. Efforts are currently under way to complement the portal with an e-signature tool that is being developed jointly by OMSAR and the Ministry of Economy and Trade. A higher Internet penetration rate beyond the 4.4 per cent national average²⁸ and cheaper telecommunication services are also needed to make this service more effective. While the portal does not provide access to information about industrial standards and technical regulations, it demonstrates the willingness and capacity of the Government of Lebanon to provide needed information to the public in a coherent, coordinated and accessible manner.

The Government of Lebanon also put forth a socio-economic plan entitled “Recovery, Reconstruction, and Reform” that was presented at the International Conference for Support to Lebanon (Paris III) on 25 January 2007.²⁹ The need for SME development is mentioned in paragraph 16 in terms of strategic

²⁶ See list of bilateral agreements signed by Lebanon at: <http://www.economy.gov.lb/MOET/English/Panel/Trade/Misc/BilateralListofCountries.htm>.

²⁷ Joey Ghaleb, “Public Service Delivery, Private-Public Partnership, and Regulatory Reforms: An Overview for Lebanon with a Focus on Social Public Services”. UNDP, Beirut, April 2006.

²⁸ Government of Lebanon, Central Administration of Statistics, “The National Survey of Household Living Conditions 2004”.

²⁹ Government of Lebanon, “Recovery, Reconstruction, and Reform”, position paper submitted to the International Conference for Support to Lebanon, Paris III, 2 January 2007, available at: <http://www.finance.gov.lb/NR/rdonlyres/89C37627-828E-4626-9F00-9A6498BB4082/0/ParisIIIEngVersion.pdf>.

objectives to promote and support individual initiatives. Among the six pillars for action, the plan recommends a set of growth-enhancing reforms that are centred on improving competitiveness and the business environment. Reference made to SME support and reform programmes (paragraph 47) cites the potential of SMEs to contribute to employment creation. The establishment of a competitiveness council comprised of public and private sector representatives is proposed in paragraphs 50 and 51. The plan also specifically identifies the need for good governance as a prerequisite for investment and growth (paragraphs 38 to 42).

These policies, plans and programmes articulate the Government of Lebanon's commitment to strengthen the SME sector and increase access to information on standards as a means to enhance competitiveness, improve the business environment, and comply with measures agreed to in international trade agreements.

2. *Scope of assessment*

This impact assessment consists of an *ex post* gap analysis examining national policies, plans and programmes that are designed to provide access to information on standards in Lebanon, with particular reference to services accessible to SMEs. Based on this assessment, corrective measures are proposed along with an *ex ante* assessment of the recommended measure for improving knowledge management and access to information on standards in Lebanon.

3. *Methodology*

A participatory approach was adopted for preparing both the *ex post* assessment of existing policies, programmes and institutions as well as the *ex ante* assessment of the proposed corrective measure. This approach is more suitable for short-term exploratory and preliminary assessments. The *ex post* assessment was based on a set of indicators and drew on gap analysis tools, which were applied to identify loopholes in the current legal and institutional framework for supplying information on standards in Lebanon. Once this was completed, a set of scenarios was developed for responding to the identified gaps, including corrective measures. An *ex ante* impact assessment was subsequently conducted to examine the potential implications of adopting one of the corrective measures, with a view towards expected outputs, outcomes and impact.

(a) *Indicators for conducting assessment*

The analysis was based on the following output indicators to assess the effectiveness of existing policies, plans and programmes in facilitating access to information on standards in Lebanon, namely:

- Accessibility of services to Lebanese firms, particularly SMEs;
- Applicability of information provided for Lebanese firms, particularly SMEs;
- Participation in coordination mechanisms between institutions responsible for issuing and disseminating information on standards;
- Cost to access information on standards;
- Efficiency of the information delivery mechanism;
- Capacity for outreach and awareness-raising, particularly among SMEs.

The outcome indicators against which the interventions are assessed are to determine whether they:

- Reduce the number of rejected shipments;
- Increase the volume of exports;
- Increase the diversification of export markets;
- Increase the diversification of exported products.

The impact indicators then examine the development goals in terms of whether these interventions have implications for economic competitiveness and social welfare by generating increased employment and income opportunities in the SME sector, which are national goals articulated in the Paris III plan.

(b) *Consultation with relevant stakeholders*

There are three groups of stakeholders directly concerned with the development of standards and access to them. The first are the users of standards, and they include manufacturers, exporters, product developers and SMEs. The second group includes the intermediary agents such as government service providers, chambers of commerce, syndicates and other business associations. The third group is comprised of those responsible for developing standards and technical regulations, namely, national standards organizations, ministries, private institutions and international organizations engaged in standardization.

The identification of the relevant stakeholders in Lebanon was among the first tasks undertaken for the assessment, which began with the invitation to participate in a national round table that was held on 15 December 2006. Participants included representatives of the relevant ministries (industry, economy and trade, environment, finance, social affairs, and public health), as well as private institutions (such as the Industrial Research Institute, the Euro-Lebanese Centre for Industrial Modernization, the Association of Lebanese Industrialists, and the General Union of Chambers of Commerce, Industry and Agriculture for Arab Countries). This was followed by meetings with stakeholders unable to attend the first round table, as well as a series of interviews. The full draft report was circulated to the major stakeholder groups for input. A final round table to solicit comments from stakeholders on the draft was subsequently convened at the Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon on 23 February 2007. These consultations contributed to the finalization of this case study.

4. *Impact assessment*

A census conducted by the Central Administration of Statistics in 1996 shows that at that time there were 199,450 economic units in Lebanon, 0.2 per cent of which had more than 100 employees, 5 per cent of firms had between 5 and 10 employees, while 88 per cent employed less than 5 persons. The census also found that 61 per cent of firms operated in an area of less than 100 m² and only 14 per cent had a surface area larger than 200 m². These figures show the preponderance of very small enterprises in the Lebanese economy. Over the last decade, the situation has hardly changed. A study in 2003 identified only 1,365 SMEs with a turnover of more than 300,000 Euros.³⁰ A more recent survey published in 2006 of almost 2,950 micro and small enterprises with less than 50 employees operating in almost all economic activities further validates the findings of the 1996 official census.³¹ This demonstrates that SMEs continue to dominate the Lebanese economy and that these companies have limited human and financial resources, which constraints their ability to remain updated on new information on standards, industrial developments and market trends.

(a) *The access to information challenge for Lebanese SMEs*

In a survey of firms detailed in a study issued by ESCWA in 2001,³² Lebanese exporters cited the lack of access to information on standards, regulations and customs reporting requirements as an important

³⁰ Study referred to in the SME Inception Report published on the website of the Ministry of Economy and Trade at: <http://www.economy.gov.lb/NR/rdonlyres/3C03D334-8CE3-4A97-A88C-69F326052D9F/0/InceptionReport.doc>.

³¹ "Micro and Small Enterprises in Lebanon", Economic Research Forum (ERF) Research Report Series No. 0417 (undated but published online in December 2006). The survey, which was conducted in 2004 and published in 2006, excluded agriculture, professional and domestic services, illegal activities, mobile vendors, non-market activities, and enterprises employing more than 50 workers.

³² See ESCWA, *The Impact of Environmental Regulations on Production and Exports in the Food Processing, Garment, and Pharmaceutical Industries in Selected ESCWA Member Countries* (E/ESCWA/ED/2001/14), 2001.

obstacle to trade within the Arab region market and with other developing markets. This challenge was echoed during the national round table organized by ESCWA in Beirut on 15 December 2006 to discuss industrial policy challenges affecting the competitiveness of SMEs in Lebanon. The purpose of the consultation was to identify through a participatory process the focus of an impact assessment that could support decision-making on SME-related policies in Lebanon and contribute to the preparation of this publication. The round table grouped public and private sector stakeholders who collectively formulated a list of the major constraints and challenges facing Lebanese SMEs. Apart from issues related to the uncertain political situation being experienced in Lebanon at that time, these included: poor access to credit, the underdeveloped legal and regulatory environment, high production costs, and the difficulty of accessing information on foreign and domestic standards and regulations as well as information on market opportunities and new industrial developments.

The above list is supported by the 2006 spot survey conducted by the SME Support Programme at the Lebanese Ministry of Economy and Trade.³³ The survey covers five industrial sectors (chemicals and man-made fibres, pulp and paper, rubber and plastics, machinery and equipment, and electrical machinery), which account for 20 per cent of Lebanese merchandise exports, and also covers the media and advertisement service sector. While the survey is somewhat biased towards energy-intensive industries, the findings remain indicative and informative of the current situation facing SMEs in the country. Table 2 lists the challenges identified by the survey along with their associated severity ranking.

As revealed by the surveys and the round table discussion with national stakeholders, access to information about local and international markets is repeatedly cited as a challenge facing SMEs, including access to information about specific industry information such as standards and regulations.

TABLE 2. SELECTIVE LISTING OF CHALLENGES FACING SMES IN LEBANON

Challenge	Severity rank
Macroeconomic stability	3.66 (highest)
Security and political stability	3.64
Cost of electricity	3.12
Cost of financing	2.92
Collateral requirements for financing	2.71
Cost of supplies and raw materials	2.58
Local competition	2.48
Access to information on export markets	2.45
Access to industry-specific information	2.10
Access to information on local markets	2.03
Access to information on procedures and legislation	2.02
Access to financial support services	2.00

Source: Consultation & Research Institute, *SMEs Business and Market Review*, Ministry of Economy and Trade, Lebanon, August 2006, p. 205.

Note: The ranking is based on a 1 to 4 range, with 4 representing the greatest level of severity perceived.

(b) *Baseline information on access to information on standards from non-Lebanese sources*

Lebanese SMEs and business development service providers can access information on standards provided by international organizations as well as foreign governments. Some information is available for free, while the full text of standards is usually available for purchase through various channels. A wealth of

³³ Of the 320 firms targeted with less than 200 employees, 297 firms answered the survey, which was conducted prior to the war in Lebanon during the summer of 2006: Ministry of Economy and Trade, "SMEs Business and Market Review", Final Report, Consultation & Research Institute, August 2006, available at: <http://www.smelebanon.com/admin/uploads/Business%20and%20Market%20Survey%20for%20SMEs.pdf>.

information is also available on best practices and ways to comply with international standards. While this information is not created or maintained through Lebanese policies, it provides a baseline of information for understanding what value added can be provided by Lebanese policy interventions designed to improve access to information on standards. This baseline analysis also provides sources of information and institutional models that can be incorporated into interventions to improve the accessibility and delivery of information on standards to SMEs in Lebanon.

(i) *Access to information on standards from selected international organizations*

The WTO identifies three international standard-setting organizations as the reference points for the preparation and dissemination of technical regulations related to SPS measures. These are the Codex Alimentarius Commission, the International Plant Protection Convention (IPPC) Secretariat, and the World Organisation for Animal Health (OIE).³⁴

The Codex Alimentarius Commission was created in 1963 by the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) to develop food standards, guidelines, codes of good practice and related documents. The Codex Alimentarius (Codex) has since become the global reference point for consumers, food producers and processors, and national food control agencies on international standards related to trade in foods. The WTO SPS and TBT agreements encourage the international harmonization of standards. As such, Codex standards have become the benchmarks against which national food safety regulations are evaluated within the legal parameters of WTO. However, since standardization remains a work in process, access to information on and compliance with Codex standards is not sufficient. Exporters still must solicit information on national regulatory requirements from different national agencies or submit requests for information through their WTO enquiry point.

The Codex Secretariat disseminates information on its standards projects to Codex Contact Points in member countries and international consumers' organizations, and provides information on request. Codex standards are publicly available on its website free of charge and accessible through a search engine (<http://www.codexalimentarius.net>). However, the information generated through searches is sometimes excessive, inconsistent or of questionable relevance. The international organizations associated with Codex have therefore combined their efforts to provide easier access to authoritative information on food standards and related matters in their respective markets. The International Portal on Food Safety, Animal, and Plant Health provides access to the databases of the United States Department of Agriculture, the United States Food and Drug Administration, the Health and Consumer Protection Directorate-General of the European Commission as well as the regulations of several other countries. Information available through the portal includes official national standards and regulations as well as Codex standards and guidelines (<http://www.ipfsaph.org>).

With respect to information sharing, the International Food Safety Authorities Network (INFOSAN) promotes the exchange of food safety information among food safety authorities at national and international levels to facilitate access to information. The FAO agricultural law database (FAOLEX) provides free online access to the full text of national laws and regulations on food, agriculture and renewable natural resources in the original language of the measure, with an English language search engine and abstracts sometimes provided in English (<http://faolex.fao.org/faolex/index.htm>).

The IPPC has launched an International Phytosanitary Portal (<http://www.ippc.int>) to facilitate access to information on their activities and standards. OIE posts information on its website (<http://www.oie.int>) on animal welfare and veterinary standards, including updates on avian influenza. Additional information about SPS notifications of WTO member states and concerns raised by member states on food safety, animal and

³⁴ The World Organisation for Animal Health was formerly known as the Office International des Epizooties, but it changed its name in May 2003, while keeping OIE as the acronym for the organization.

health measures of other members before WTO is also now available at the SPS Information Management System (SPS IMS) that was launched by WTO in October 2007 (<http://spsims.wto.org>).

WTO calls on all standards organizations to comply with its Principles for the Development of International Standards and recognizes those that accept its Code of Good Practice. ISO is among those organizations, although it does not hold any special status before WTO.

ISO was established in 1947 as a non-governmental organization. Its secretariat operates as a network of national standard institutes in 157 countries, including about 110 developing countries. The principal activity of ISO is the development of technical standards. Although ISO standards are voluntary, there have been cases where ISO standards (such as quality management systems under the ISO 9000 series of standards) have become market requirements or import measures required by governments.

ISONET operates through a network of national standardizing bodies that seeks to make information on standards, technical regulations and related matters available to interested parties. It does so by providing a directory of up-to-date contact information on ISO member institutions and WTO Enquiry Points. ISO and the International Electrotechnical Commission (IEC) jointly manage an online portal called the ISO/IEC Information Centre, which provides information on international standards and conformity assessment (<http://www.standardsinfo.net>). ISONET is posted on the website of the World Standards Services Network (WSSN), which is a publicly accessible web service that provides lists, web links and contact information for standards-setting organizations around the world based on different classifications (<http://www.wssn.net>). Access to the directories of standards-setting bodies is provided free of charge online.

It should be noted, however, that ISONET and WSSN do not provide the full text of standards themselves. In order to obtain a standard prepared by an ISO member institution, interested parties must direct their request to their national ISONET member institution, which will in turn sends the request to the relevant WTO Enquiry Point. International governmental and non-governmental institutions channel their requests through the ISO/IEC Information Centre. Requests for information submitted by an SME or private institution directly to a WTO Enquiry Point are not accepted within the framework of WTO information exchange provisions. However, SMEs may still secure standards directly from a standard-setting institution that are publicly available for purchase.

(ii) *Access to information on the standards in the American marketplace*

The formulation of standards in the United States of America is conducted through a highly decentralized process. A limited number of national agencies and departments are responsible for formulating and enforcing mandatory standards and regulations that focus on the protection of human health, food safety, occupational health and safety, and the environment. Enforcement of these measures is often realized through cooperative mechanisms implemented by governmental agencies at the national, state and local levels. However, there are over 450 private standards development organizations operating in the United States formulating voluntary technical standards, which are applied by companies seeking to demonstrate compliance with industry-accepted norms. About 80 per cent of these standards are generated by about 20 American standards-setting organizations.³⁵ Producers seeking to export to the American marketplace must thus be cognizant of, and compliant with, not only technical regulations, but also with sector-specific industrial requirements imposed by private standard-setting organizations.

The United States Food and Drug Administration (FDA) is responsible for regulating the food, chemical and drug industries. While this entails the formulation and adoption of national regulations in these areas, the FDA is also directly involved in the monitoring, inspection and enforcement of compliance with

³⁵ United States Department of Commerce, *Standards & Competitiveness: Coordinating for Results*, 2004, p. 5, available at: http://ts.nist.gov/Standards/upload/trade_barriers_report-2.pdf.

regulations under its mandate. As such, it closely cooperates with the United States Customs Authority as well as local health departments through an extensive network of inspectors and testing facilities to ensure that national regulations are applied and enforced at the port of entry and also within the country.

Given its dual role as a standard-setting agency as well as an enforcement institution, the FDA has access to important information about compliance with regulatory measures. This integrated function allows it to compile and disseminate information on regulatory requirements, as well as cases of non-compliance with regulations. This information is provided on a publicly available website that details cases of non-compliance with national regulations through monthly import refusal reports (available at: http://www.fda.gov/ora/oasis/ora_oasis_ref.html). As such, SMEs can access free information on technical regulations adopted by the FDA from this website, which also posts a list of detentions imposed on exports that exporters from different countries of origin have found more difficult to comply with, thus ensuring that future exporters can avoid the same mistakes.

Beside those adopted by regulatory agencies, voluntary standards are developed by private associations or through public-private partnership. The National Institute of Standards and Technology (NIST) is an illustration of the latter, whereby a governmental, non-regulatory body is positioned at the nexus between academia and industry to support the preparation of voluntary standards in line with new technological developments and scientific research. Founded in 1901, NIST is part of the United States Department of Commerce and is responsible for developing tools to measure, evaluate, and harmonize industry standards as a means to assist United States firms to become more innovative and remain competitive. Its mandate is firmly based on informing firms about emerging standards made possible through new scientific developments, technologies and targets, which in turn help companies to become more efficient and productive as they seek compliance with these new norms.

The Institute's work covers 11 sectors, with particular focus placed on manufacturing, electronics and the health care sector. NIST participates in over 100 private-sector standards organizations and responds to nearly 6,000 requests for standards-related information on an annual basis from United States exporters and industrialists.³⁶ The Institute also serves as the United States WTO TBT enquiry point³⁷ and maintains an automated Export Alert! service, which provides daily notifications about regulatory changes being proposed by over 130 countries around the world.

(iii) *Access to information on European standards*

The EU has had to face the significant challenge of seeking consistency between the regulatory requirements of its member States during its establishment and enlargement. There was a special appreciation that differences between national policies and legislation would create technical barriers to trade not only for imports, but also for trade within its internal market. The policy was strengthened in 1985 when the European Commission adopted a "new approach to harmonization and standardization", which represents a major change in the process of drafting standards and directives in the EU.

The new approach is based on a number of principles; chief among them is that European norms (EN) are not mandatory. Legislative harmonization between countries is limited to essential requirements primarily needed to protect human health, the environment and safety. The new approach deals with large families of products and covers horizontal risks rather than specific products. Performance requirements are specified without going into the details of how compliance with the measure should be achieved. These voluntary standards are issued by one of the three European standards organizations: the European Committee for Standardization (CEN); the European Committee for Electro-technical Standardization

³⁶ National Institute of Standards and Technology (United States), "NIST: The Common Denominator", available at: http://www.nist.gov/public_affairs/brochures/impact.htm.

³⁷ See country list of TBT enquiry points at http://www.wto.org/english/tratop_e/tbt_e/tbt_enquiry_points_e.htm.

(CENELEC); and the European Telecommunications Standards Institute (ETSI). Standards adopted at the European level must be transposed into a national standard and be numbered and accessible at the country level (for example, the British Standards Institute issues and sells European standards under a GB EN document number). Any conflicting national standard must be withdrawn since a European standard supersedes the related national standard. Inversely, EU directives establishing environmental, health and safety regulations can be accessed for free online from the relevant directorate-general of the European Commission.

A website was developed to increase awareness about the new approach in Europe and to provide information on the standardization process (<http://www.newapproach.org/>). The site provides access to information on standards and the standardization process, which is consistently applied by the three European standards organizations, as well as links to those organizations. Through the site's search engine, a user can identify the name and number of a standard and locate the relevant contact point(s) for obtaining the standard through a national standards organization.

The European Commission has also established an Export Helpdesk portal to assist exporters to access the EU market (<http://export-help.cec.eu.int/>). The website provides extensive information on EU import requirements, taxation rules, import tariffs, customs documents, rules of origin and trade statistics, as well as market opportunities. By accessing this site, an SME can thus identify import requirements for any product up to the 8-digit level using the Harmonized System (HS), and also obtain a listing and access to all applicable European legislation for free. However, exporters must still access country-specific information and standards separately, although contact information on the responsible authority is provided.

Another comprehensive and user-friendly website is posted by the Centre for the Promotion of Imports from Developing Countries (CBI) (<http://www.cbi.nl>). The site is specifically designed to assist exporters from developing countries through a variety of services. It helps exporters to access country-specific requirements (legislative, non-legislative, tariffs and quotas), publishes market surveys, makes available databases to facilitate business matching, and also offers a training programme.

(iv) Access to information on Arab standards

In an effort to improve intra-Arab cooperation on industrial policies and instruments, the League of Arab States established the Arab Industrial Development and Mining Organization (AIDME) in 1992. The organization serves Arab Governments and is responsible for facilitating the unification of industrial standards among Arab countries. Regular meetings of national standard-setting bodies in the Arab region help to identify challenges associated with the development of standards in Arab countries. However, little progress has been made in recent years in harmonizing standards in the region as most efforts have been focused on translating international standards into Arabic. Online access to Arab unified standards and translated documents is restricted to registered members of government institutions. As such, access is limited and unavailable to the general user, including SMEs seeking to export within the Arab region.

It should be noted that a few Arab standard-setting agencies have developed comprehensive and user-friendly websites for accessing national standards and information about selected destination markets. The search engine on the website of the Jordanian Institute for Standards and Metrology offers various ways through which users can access different lists of national standards, along with the price of each standard and purchasing procedure (<http://www.jism.gov.jo>). A catalogue of Jordanian standards is available for purchase for about \$19. The Egyptian Standards Organization provides easy access to its list of standards (<http://www.eos.org.eg>), as does the Saudi Arabian Standards Organization (<http://www.saso.org.sa/>), which is also responsible for facilitating the harmonization of standards among countries of the GCC. Several Arab standards organizations have also signed memorandums of understanding with counterpart agencies in other Arab countries. Some of these are to facilitate the exchange of information between countries, while others also include capacity-building components to assist cooperation in the preparation of technical standards.

(v) *Access to information on Chinese standards*

Access to information on Chinese standards is improving and along with it market access. Although the principal source of information on Chinese standards has traditionally been the Chinese importing partner, new information tools are being posted by various Chinese Government organizations in the English language. For instance, the Standardization Administration of China has a searchable catalogue of standards and standards-related projects on its website (<http://www.sac.gov.cn/english/home.asp>), while the State Food and Drug Administration (<http://www.sfda.gov.cn/eng/>) provides information on technical regulations and normative documents related to the food and pharmaceutical sectors. Commercial attachés in foreign embassies can also provide important information on foreign markets and standards. They remain an untapped source of information that SMEs should consider drawing upon more often. For instance, the commercial attaché at the Chinese Embassy in Beirut reports only on very rare instances when a firm has contacted the Embassy to inquire about a trade opportunity or a Chinese standard, despite efforts to increase awareness about trade between China and Arab countries.³⁸

(vi) *Conclusions regarding access to information from international sources*

Despite the availability of information on international and foreign standards from various international sources, a 2006 survey of Lebanese firms still found that SMEs face difficulty in accessing information on standards and foreign markets.³⁹ This is mostly due to the fact that access to these services and information sources is provided mostly through communication technologies that are expensive or underdeveloped in Lebanon. For instance, Lebanon's mobile telephone post-paid peak minute rate was 60 per cent higher in 2006, and more than double for pre-paid peak minutes, than the second most expensive Arab provider. Lebanon has also a relatively low mobile penetration rate compared with other countries in the Arab region, reaching 30 per cent in 2006.⁴⁰ In addition, there are only an estimated 400,000 personal computers in use in Lebanon, and only 150,000 regular Internet subscribers. While the number of Internet users is estimated to be much higher, at 600,000 persons, this disconnection between subscribers and users indicates that information sources are probably not being accessed on a regular and consistent basis.⁴¹

Internet connectivity is also slow to moderate in terms of speed, which also reduces the incentive and ability of owners and managers of SMEs to spend time searching for the right information. Nevertheless, some progress has been made. For example, the Association of Lebanese Industrialists (ALI) provides a direct link to the EU Export Helpdesk straight from its homepage (www.ali.org.lb). However, other sites are less well-known or have search engines that generate too many responses for simple inquiries. As such, it is not necessarily true that a needed standard is expensive, but the transaction costs involved in finding the standards as well as accessing the information needed to benefit from the standards can be.

Lack of awareness about these varied information sources remains another problem. Despite the availability of information from online sources, SMEs are not well informed about these resources and are not proficient in the ways they can be accessed and searched to obtain information relevant to their needs. While improved Internet literacy could partially alleviate this problem, training would also be needed on the principles and practices related to international standards setting so as to inform stakeholders about the framework for adopting and applying standards in the global marketplace.

³⁸ Telephone interview with Chinese trade attaché in Lebanon (19 December 2006); see: <http://lb2.mofcom.gov.cn> for more information.

³⁹ Consultation & Research Institute, *SMEs Business and Market Review*, Ministry of Economy and Trade, Lebanon, August 2006.

⁴⁰ ESCWA Statistical Information System, available at: <http://esis.escwa.org.lb/>.

⁴¹ G. Arendsen and D. Lechevin, study on "Investment Opportunities, ICT (Information and Communications Technology)-Lebanon", presentation delivered in February 2006 at the Investment Development Authority of Lebanon (IDAL), with references cited from the International Telecommunications Union, World Bank and Lebanese Ministry of Telecommunications.

(c) *Lebanese interventions for facilitating access to information on standards*

Because of the constraints facing SMEs and the continued need to assist them to access information and improve their competitiveness, the Government of Lebanon has chosen to address these information externalities through the policies, plans and programmes implemented by the institutions cited below. These interventions are examined based on the above-mentioned indicators.

(i) *Lebanese Standards Institution*

The Lebanese Standards Institution (Libnor) is entrusted with preparing national standards and authorizing the use of the Lebanese Conformity Mark. A public authority established under the Ministry of Industry in 1962, Libnor is a member of ISO,⁴² Codex⁴³ and the Arab Industrial Development and Mining Organization (AIDMO), and became an associate member of CEN and CENELEC in April 2007. Libnor has signed memorandums of understanding with several Arab and European counterparts and is the official focal point for obtaining national and international standards in Lebanon.

The Libnor website (<http://www.libnor.org>) provides links to associate institutions, such as ISO and CEN, but does not provide information on whether standards should be obtained from those institutions or through Libnor, and at what cost. The user is instead invited to contact the library for additional information. Other information links are not provided. The website also includes a search engine for accessing the titles of Lebanese standards through an online catalogue. These standards are organized into product areas, namely: air conditioning equipment, chemicals, construction, electrotechnical, food, information technology, mechanical, medical, paper and petroleum. ISO and international calibration standard (ICS) nomenclature are not offered as alternative search criteria, and information on standards under preparation or withdrawn is not available online. Since the website is in the process of being restructured in accordance with ISO guidance, a free electronic copy of the 2007 catalogue of Lebanese standards can be obtained by contacting the library.

Libnor began keeping records regarding requests for its services in 2006, and thus little analysis can be made on the provision of its services over time. However, during that year Libnor received about 600 requests for information on standards, or an average of 50 requests per month. Not every request led to the purchase of a Lebanese or foreign standard, but requests were mostly fielded from conformity assessment bureaux, real estate developers, public agencies and firms. For instance, the Ministry of Economy and Trade purchased approximately 200 out of the 350 of the ISO standards that were purchased via Libnor in 2006; the remaining standards were purchased by SMEs, the Industrial Research Institute, academic laboratories and professors. In examining these purchases, it is interesting to note that a number of SMEs had first contacted ISO directly to obtain its standards and were subsequently directed to Libnor for purchasing. This indicates the limited awareness among the private sector of the services that Libnor provides regarding access to standards.

Among Arab countries, Libnor reports that Saudi Arabian and Syrian standards are the most in demand, although only 15 and 25 standards were requested for these two markets respectively in 2006. The number of requests does not mirror the volume of trade with these countries, given that Saudi Arabia is an entry point into the GCC common market and the Syrian Arab Republic is Lebanon's only neighbouring trading partner. A handful of Egyptian and Jordanian standards were also purchased in 2006. Most of the standards purchased relate to food, mineral water, cement and construction materials. In comparison, 100 British standards were purchased during the same time period despite the fact that exports to the United Kingdom pale in comparison to the volume destined for Arab countries. About 10 United States standards, mostly related to the construction sector, were also purchased. A possible explanation for this low demand

⁴² See list of ISO members at http://www.iso.org/iso/about/iso_members.htm.

⁴³ See list of the Commission's members at <http://www.codexalimentarius.net/web/members.jsp?lang=EN#L>.

for standards from Arab countries could be that importers and consumers of Lebanese goods in Arab markets require compliance with British, European, ISO or United States standards even if the product is destined for the Arab marketplace. With respect to non-traditional markets, Libnor does not have agreements with any East Asian or Latin American countries, nor did it receive requests for information on standards from those regions during 2006. However, requests for information on Lebanese standards have been received from Asia.⁴⁴

The fee structure established by Libnor for the sale of Lebanese standards is based on the size of the final document. Standards that are 1 to 10 pages in length are sold at Lebanese pounds (LP) 15,000; standards 11 to 20 pages in length are sold at LP 20,000; standards 21 to 49 pages in length are sold at LP 35,000; and standards 50 pages long and above are available for purchase at LP 50,000.⁴⁵ The number of pages in a standard is listed on the website and in the catalogue to determine the cost of the standard, although the fee structure for standards is obtained by contacting the library. The cost of Lebanese standards is thus relatively nominal compared with other costs of production for an SME in Lebanon.

The fee Libnor charges for the purchase of non-Lebanese standards is set by the foreign party. For Arab countries, the processing fee is largely symbolic, although the cost for the standard issued by the foreign agency is also passed on to the user. Recent agreements with European standards organizations allow Libnor to more easily access standards from those agencies, which in turn reduces the fee that Libnor charges for providing that service. Libnor's full membership in ISO entitles it to sell ISO standards to Lebanese clients in return for a fee set by ISO. Libnor accesses other countries' standards via a third party provider (such as Advanced Communication Technologies and Services (ACTS)), which operates for profit. The limited number of memorandums of understanding that Libnor has signed with countries increases its reliance on private vendors to purchase standards from institutions outside of its network. This intermediation comes at a price premium for the SMEs, which must pay a markup for this service. About 20 per cent of Libnor's annual budget is generated from the sale of standards.⁴⁶

Regarding the speed of service delivery, the time to provide information to a client varies on internal and external factors. If the country of interest is among those with which an effective memorandum of understanding was signed, or has a comprehensive website, then the service is relatively quick and the fee is limited. Otherwise, the search time and subsequently the cost of information for the SME will increase.

In terms of coordination with other agencies, Libnor is not well informed on how other Lebanese institutions are assisting SME access information about standards. As a result, there is a duplication of effort and unnecessary competition between service providers in Lebanon, which results in confusion among SMEs seeking to export or improve product quality. Greater coordination and consolidation will become necessary as Libnor conforms to the requirements of CEN, CENELEC and ISO/IEC, as well as WTO since Libnor will serve as the country's TBT Enquiry Point once Lebanon accedes to WTO. However, with a staff of 13 people (including administrative staff) and changing management, financial and human resource constraints have limited the ability of Libnor to improve its services, not only with regard to access to information on foreign standards, but also in terms of the development and adoption of national standards for the Lebanese market.

(ii) *Ministry of Economy and Trade*

The Ministry of Economy and Trade operates a multifaceted programme based on two major components: an SME Support Programme⁴⁷ and a Quality Infrastructure Programme, which are financially

⁴⁴ Based on interviews with officials at Libnor (January 2007).

⁴⁵ The exchange rate was \$1, equivalent to LP 1,507, in August 2007.

⁴⁶ Input from Libnor during national consultation on 23 February 2007 in Beirut.

⁴⁷ Most of the information on the SME Support Programme is drawn from the Project Annual Work Plans and Inception Report available at <http://www.economy.gov.lb> and from the interviews with the Acting Head of the SME Support Programme on 5 and 18 January 2007.

supported by the European Commission. The SME programme has assisted the Government in pursuing an integrated approach to SME development, in establishing business development centres, and in creating a financial guarantee scheme. The programme has also examined access to information about standards from the larger policy perspective, and will likely continue to do so when the programme is phased into an SME support unit in 2008. The Quality Infrastructure Project is intended to improve and develop the major functions of the conformity assessment chain, while reinforcing awareness and coordination across private and public sector institutions. The project's enterprise component is aimed at informing the private sector on international standards and conformity assessment procedures and at assisting exporters in identifying the means for overcoming obstacles to international trade. The project is primarily focused on agriculture, agro-industries and food packaging.

The original work plan for this programme refers to the development of an information service to meet the needs of small and medium-sized firms through the creation of a library and technical information centre. However, because of the war in Lebanon during July and August 2006, tenders for implementing these activities were cancelled and the European Commission funding line was closed. The library that was supposed to become an integral part of the centre was subsequently downsized to an in-house library and website. Nevertheless, the project has proved successful in other areas of implementation, particularly in raising the profile of the SME sector and strengthening national quality infrastructure through the establishment of testing labs. The programme also includes a component that seeks to improve the management and efficiency of Libnor. A Lebanese National Quality Centre is also foreseen, which will operate as a centre of expertise for quality advice, promotion, exchange of knowledge and experience, offering training activities to industry, quality infrastructure institutions and government bodies. However, it is too early to determine the effectiveness of these planned initiatives at this time.

(iii) *WTO Enquiry Points*

While Lebanon is not yet a WTO member, arrangements to establish enquiry points in accordance with WTO requirements have been initiated. The SPS Enquiry Point will be hosted by the Ministry of Agriculture, with support provided by the Ministry of Economy and Trade. The TBT Enquiry Point will be hosted by Libnor.

According to WTO guidelines, enquiry points are established so that member countries can easily obtain information about technical regulations in another member country without having to identify and directly contact the responsible national agency. An SPS Enquiry Point is responsible for answering all reasonable questions and providing documentation regarding SPS measures adopted within the country; all control, inspection, and risk assessment procedures; and any information about membership in international SPS organizations or SPS-related agreements. The mandate of the Ministry of Agriculture spans these three areas, while the Ministry of Economy and Trade is responsible for leading the WTO negotiation process and is also entrusted with overseeing issues related to consumer protection and food safety.

Assigning the Ministry of Agriculture as the SPS Enquiry point is appropriate since the Ministry is directly engaged in the development of food standards as well as animal and plant health. It also maintains good working relationships with officials in charge of areas beyond its mandate and has also been active in most technical committees that Libnor convenes related to the food sector. However, the resources available to the Ministry of Agriculture are limited and insufficient to handle multiple and complex requests directed towards enquiry points. Greater resources are needed to facilitate coordination and networking with counterparts at the national level and to establish an effective system for knowledge management.

Libnor was identified by the Lebanese Government as the TBT Enquiry Point. The desk is not yet operational, so an evaluation of the service is premature. However, reforms and strengthening measures are planned to expand the capacity of Libnor so that it can effectively serve as a TBT Enquiry Point. Some assistance to this end is being provided by the Quality Infrastructure Project at the Ministry of Economy and Trade with the aim of developing a management information system and database. However, awareness-raising of the functions of Libnor will also be needed since relevant stakeholders, including members of the

national chambers of commerce, industry, and agriculture, are unaware of the role that Libnor will need to play in collecting and managing information on standards and potential trade-distorting measures that exist in the Lebanese market.

(d) *The effectiveness of policy interventions in achieving policy goals*

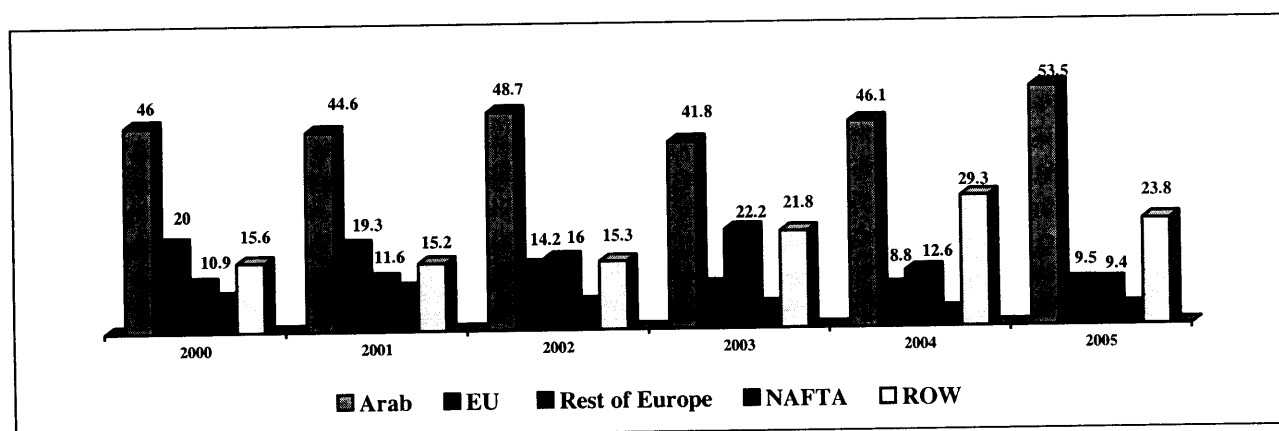
While the above public policies, plans and programmes have helped to raise awareness of the need for access to information about standards and have contributed to improving quality infrastructure in Lebanon, their impacts have not significantly helped to improve SME competitiveness to date. This is evidenced by the following.

(i) *External trade remains concentrated*

Better access to information on foreign and international standards should enhance SME competitiveness by improving the ability of firms to export and access foreign markets. However, the Ministry of Trade and Economy survey completed in 2006 found that 58 per cent of Lebanese SMEs export to one country, while 83 per cent export to only two countries.⁴⁸ In addition, 65 per cent of sales in the targeted sectors are done without an agent, while only 18.6 per cent use the services of an agent in the destination country. The survey also reveals that the larger the SME (in terms of number of employees), the more relevant industry-specific information becomes. While not conclusive, these figures indicate that while Lebanese SMEs have been able to access foreign markets successfully, they prefer to do so through direct channels, but do not have sufficient information about different foreign market requirements to diversify their market base.

As revealed in figure III, this challenge is apparent in Lebanese trade data, which exposes the increasing Lebanese dependence on Arab markets despite trade agreements that the Government of Lebanon has forged in recent years with non-Arab economies, such as EU and EFTA States. Lebanese exports to Arab countries increased from 46 per cent of the total Lebanese exports in 2000 to over 53 per cent in 2005. In terms of total trade flows, the share of trade with Arab countries represented 20 per cent of its imports and exports in 2005, which places Lebanon as the third most regionally-oriented trading partner in the Arab region after Jordan (34 per cent) and Yemen (23 per cent). While firms are exporting to Europe and, to a lesser extent, the United States, the share of Lebanese exports to the EU and United States marketplace have been reduced by half, from 30 per cent to 15 per cent over the last five years. Conversely, trade is expanding with China, Iraq and Switzerland. Nevertheless, export revenues still accounted for less than 16 per cent of Lebanese GDP during the period from 2000 to 2004, as seen in table 3 below.

Figure III. Lebanese export markets (2000-2005)



Source: Ministry of Economy and Trade, Lebanon, January 2007. Available at: <http://www.economy.gov.lb>.

⁴⁸ Ministry of Economy and Trade, Lebanon, "SMEs Business and Market Review", Final Report, August 2006.

TABLE 3. LEBANESE EXPORTS AS SHARE OF GDP (2000-2004)

Lebanon	2000	2001	2002	2003	2004
Exports at current prices (million US\$)	2 261.3	2 578.4	2 927.3	3 075.3	3 306.8
GDP at current prices (million US\$)	16 678.6	17 065.3	18 462.3	19 396.3	20 855.7
Exports as percentage of GDP	13.6%	15.1%	15.9%	15.9%	15.9%

Source: ESCWA Statistical Information System, available at: <http://esis.escwa.org.lb/>.

Furthermore, while Lebanese programmes to improve access to information on standards continue to focus on the agricultural and agro-food sectors, Lebanon's top five export categories in 2005 were machinery and electrical appliances, base metals, jewellery (including pearls and precious and semi-precious stones), prepared foodstuffs (including beverages and tobacco), and chemicals (including pharmaceuticals and fertilizers), nearly all of which are sectors dominated by SMEs. A redirection in the orientation of technical assistance programmes related to access and compliance with standards to these dynamic sectors could probably have more positive impacts on SME competitiveness.

(ii) *Market access constraints*

Access to information provided by United States agencies on mandatory standards and new import requirements have probably assisted Lebanese SMEs in this area, since Lebanese policies and programmes on standards and export requirements have largely concentrated on improving access to the European market. The impact can be seen when examining the number of rejections that Lebanese exporters face when exporting to the United States market. For instance, a 2001 study conducted by ESCWA found that compliance with labelling requirements was the most frequent problem facing Lebanese exports to the United States market.⁴⁹ During the first six months of 2001, 133 out of the 157 shipments rejected by the FDA were due to mislabelling or misbranding. The same reason was cited for the 43 out of 46 shipments rejected over a 12-month period between December 2005 and November 2006. What is first revealed by these figures is the dramatic reduction in the number of rejections of Lebanese products. Furthermore, from among the 46 rejections during the recent period, there are only a handful of cases in which more than one shipment was rejected from the same exporter during the same month (mostly shipments sent within days of each other), while only two exporters were rejected twice over a 12-month period for the same reason. This shows that, by and large, Lebanese exporters learned from their experience and benefited from the information received from the FDA, which cites the reasons for shipment rejections and the appropriate procedures to follow. The provision of this type of detailed information thus allowed firms to make the necessary adjustments and access the United States market. It is possible that the enhanced quality infrastructure being established in Lebanon through targeted policy interventions may have also improved the accessibility of information and services related to conformity assessment requirements and contributed to the reduction in the number of rejections.

With respect to the European market, the EU recognizes that standards can be major obstacles to trade, and have adopted policies to try to mitigate this challenge. Nevertheless, the EU has made increasing use of standards to support its policies and legislation. For instance, EU directives on environment, health, and safety have tripled from an average of 20 per year in the 1980s to over 60 per year in the following decade.⁵⁰ However, as previously noted, the EU has also sought to increase access to information about standards through the Export Help Desk and the CBI website. The two portals are quite useful, but could be more effective if improvements were made to increase their outreach. For instance, a preliminary assessment found that in terms of total pages viewed on the CBI website, users from Lebanon accounted for 0.06 per

⁴⁹ ESCWA, *The Impact of Environmental Regulations on Production and Exports in the Food Processing, Garment and Pharmaceutical Industries in Selected ESCWA Member Countries*, 2001.

⁵⁰ David Cadogan, "Phtalates and the European Regulatory Framework", (slide presentation) figure on EU directives on environment, health and safety, November 1999.

cent of searches, or a total of 976 pages viewed in 2006. On average, this means that a Lebanese user accessed 7.5 pages per visit and only 83 CBI documents were downloaded, most of which focused on the fashion sector and fresh fruits and vegetables.⁵¹ As such, there is potential for improving the effectiveness of these portals by raising awareness and linkages to these websites through service providers that are dedicated to providing these services to Lebanese SMEs.

As for the Arab region, while this market is relatively less regulated than the United States and European markets, it is also less transparent and accessible with regard to information on its regulations and import procedures. While Arab countries continue to be the principal destination for Lebanese exports, firms report that it is more difficult to find information about procedures and requirements applied in Arab countries than in the United States and Europe. The problem is amplified when information on standards and procedures from some Arab countries is incomplete, arbitrarily applied, or not provided in a timely or accessible manner. This renders it more difficult for SMEs to diversify their product base, despite the increasing volume of Lebanese exports to other Arab markets.

Outside of these traditional markets, China has emerged as a destination for Lebanese exports. Lebanese exports to China more than doubled between 2004 and 2005 and continue to increase. However, the sizeable jump is the result of a scaling up of existing activities, rather than a shift towards greater export diversification. Exports mainly include scrap iron, copper and aluminium waste, which are collected by SMEs and exported for reprocessing to China. Marble and some finished and semi-finished manufactured goods have also been exported to China, including electrical machinery, diamonds and leather goods, which are also SME sectors. However, the Chinese Embassy in Lebanon reports that the Embassy is rarely contacted for information on a Chinese trade opportunity, although the Chinese trade attaché in Lebanon notes that producers still consider it easier to comply with Chinese standards than European or American standards.⁵²

(iii) Emergence of private sector responses to information gaps

Because of the information externalities that continued to challenge Lebanese exporters and SMEs, private sector and non-governmental organizations have sought to fill the information gap. For instance, the Chamber of Commerce, Industry, and Agriculture of Beirut and Mount Lebanon established a programme to facilitate access to information on standards and export requirements in certain markets. The Lebanese Euro Info Correspondence Centre (EICC) was established at the Chamber in 1996 and is a member of the Euro Info Centre (EIC) Network. Although the Lebanese EICC has a different legal status and is less equipped than an EIC in Europe, the Centre offers information services on a number of topics, including EU market regulations, customs documents, investment rules and conformity assessment requirements through networking with counterpart organizations.

The EIC disseminates legal, administrative and statistical information about the EU market, which has grown along with EC expansion. Outside the EU, the EICC network covers Switzerland, Croatia, Bosnia, Serbia, Kosovo, Egypt, Israel, Lebanon, the Syrian Arab Republic and Tunisia. The network remains restricted to most of the Euro-Mediterranean area and does not provide information on important Lebanese export markets, such as Algeria, Iraq, Morocco, and the GCC States. The network is also not designed to foster South-South trade with non-EU countries, although information on key European trading partners such as the Russian Federation can also be accessed through the network.

⁵¹ An inquiry was submitted to the webmaster of the Centre for the Promotion of Imports from Developing Countries (CBI) site on 24 January 2007 to enquire about the number of hits received from Lebanon, and the reply came on 31 January 2007 with the figures noted. A similar request regarding the Export Help Desk Portal was submitted to the delegation of the European Union in Lebanon on 16 January and 24 January 2007, but no reply was received.

⁵² Telephone interview with Chinese trade attaché in Lebanon (19 December 2006).

On average, the EICC in Lebanon responds to 600 information requests annually and receives 2,500 monthly hits on its website, which provides links to information on about 900 European and 2,000 Lebanese entries.⁵³ The EICC responds to requests from the private sector and provides its services free of charge. An informal online survey of users of the Lebanese EICC found that 34 per cent of users who responded to the survey as of January 2007 were accessing the site in order to find information on regulations, technical information or conformity assessment.⁵⁴

The Lebanese EICC, in terms of outreach and accessibility, is a relatively successful instrument for providing information to local firms. Awareness and accessibility of its services are expected to increase when the EICC is integrated into the SME Centre that the Chamber expects to establish in 2008. A positive development is that the Centre is no longer dependent on EU seed capital and will be financed by the Chamber. This demonstrates the interest and commitment of the private stakeholders in providing this type of information to the Lebanese private sector in order to improve access to information about standards and foreign markets for local exporters. The challenge remains to find a mechanism to provide this type of information to SMEs seeking to export to countries not within the sphere of the EU, where most Lebanese exports are destined.

The Chamber also provides economic research, advocacy and networking support for its membership, and is responsible for issuing certificates of origin for goods produced in Lebanon under Lebanese law. The Chamber provides information on foreign and international standards on an ad hoc basis through its library, where reference materials are maintained on standards commonly requested from its membership. Services are also often extended to sister chambers of commerce based in other parts of Lebanon. The SME Centre being established by the Chamber will act as a one-stop-shop able to provide a number of services through programmes and projects it is already implementing. The Centre is expected to be centralized and to improve the delivery of services that the Chamber provides to the private sector.

The Industrial Research Institute (IRI) also assists SMEs to access and comply with industrial standards. Established in 1955 as a private, not-for-profit organization, IRI maintains a close relationship with the Ministry of Industry through the Minister, who has held the post of chairman of the IRI Board of Directors since 1997.⁵⁵ The president of ALI also serves on the board. The Institute conducts studies, industrial research, scientific testing and analysis. It has also been contracted by Libnor to draft technical standards related to various industrial sectors. Its principal activities include testing and granting certificates of quality or conformity with standards, as well as providing specialized consulting services. IRI has a library, which is open to its 150 members and includes scientific and technical publications and references on international standards. To access IRI services, members of ALI pay LP 900,000 per year, for which they can use the IRI library and receive discounts on its services (such as a 50 per cent discount on testing); non-ALI members pay a higher membership fee and receive a 15 per cent discount on testing services.

IRI in the past several years has played an increasing role in providing information about foreign standards and regulations on an ad hoc basis. While this is not explicitly part of the IRI mandate, it reflects a gap in performance, outreach and accessibility to services provided by other institutions. It also demonstrates that firms are not only interested in accessing information on the content of standards, but also need information on ways to comply with standards.

⁵³ In 2005, which witnessed no economic growth in Lebanon, about 400 information requests were submitted to the Lebanese Euro Info Correspondence Centre (EICC) Brochure.

⁵⁴ Online results of the EICC survey dated 8 January 2007.

⁵⁵ IRI was registered on 17 August 1955 under D/L No. 10059 and continues to operate under those enabling provisions. The Minister of Industry assumed the chairmanship of IRI through Law No. 642/1997, but IRI is administratively and financially autonomous.

The Euro-Lebanese Centre for Industrial Modernization (ELCIM) is a government-supported programme that is based at the IRI facility and that was launched to help SMEs to enhance their competitiveness. It does so by assisting SMEs in diagnosing their problems, formulating business strategies, developing financial plans, upgrading their technological base, and improving their production processes. Firms that approach IRI for information on technical standards can thus turn to ELCIM for assistance on ways to comply with these standards. However, firms that have benefited from these services have tended to be larger in size and able to access the financing needed to purchase new technologies or make the investments necessary to improve their capacity. Assistance provided by ELCIM also tends to be oriented towards the European marketplace.

IRI launched a Subcontracting and Partnership Exchange Project (SPX) in 2000, which seeks to link Lebanese firms with international counterparts through an international network of 60 centres spanning 30 countries. Although using SPX services may reduce the search cost for SMEs and allow them to locate a potential partner or subcontractor, the project is not set up to access information on foreign standards. However, the establishment of this programme is a way to help Lebanese SMEs to identify potential partners and diversify their market base. Measures could thus be taken to expand the scope and delivery of IRI services to supply greater information and technical assistance on standards and foreign market requirements, particularly for SMEs.

Other development-oriented NGOs and donor-driven projects are also engaged in helping small firms to access information on international standards and comply with various certification schemes. Most of these are directed towards micro-enterprises and farmers engaged in agricultural production and processing, given the importance of the agricultural sector in generating primary and secondary sources of income for rural and remote communities in Lebanon.

(e) *Summary of findings*

Although policies and institutions for improving access to information on standards exist in Lebanon, SMEs continue to face difficulty in accessing the needed information. A review of the analysis leads to the identification of the following gaps in the policy and institutional frameworks, which are manifested through the targeted output indicators. Specifically, the assessment finds the following:

- *Accessibility*—Information on standards is accessible through Libnor, but SMEs are not aware of Libnor's services nor the procedures and costs for obtaining standards. Other service providers from the public and private sectors have thus had to step in to fill the gap so as to provide this information. Better models for providing access to this type of information through standard-setting bodies can be drawn from other Arab countries and international organizations;
- *Applicability*—Information on standards is sought by Lebanese firms, particularly information on international standards and standards from developed economies. This is despite the fact that most Lebanese exports are destined for the Arab market with a view towards enhancing the potential to expand trade opportunities with other developing countries. The applicability of the information provided by government institutions could thus be improved by disseminating information on standards and foreign requirements related to new market opportunities and developments that Lebanese exporters could consider, rather than facilitating access to information only on a demand-driven basis;
- *Coordination*—There is inadequate inter-institutional coordination among institutions providing information on standards at the national level. SMEs are seeking information from different sources, both domestically and abroad. The establishment of WTO Enquiry Points could help to centralize the management of information on Lebanese TBT and SPS measures, provided that appropriate networking and knowledge management systems are put into place. It is unlikely, however, that the Lebanese enquiry points will improve SME access to information on foreign and

international standards unless complementary programmes are put into place to pool this information;

- *Cost*—The cost to access information on standards is moderate from a financial perspective, with prices dependent upon source of the standard and its length. However, the time and effort needed to access and understand the appropriate standards is high, particularly for SMEs, which often require technical assistance, such as the services of outside experts and conformity assessment providers, to determine how to comply with a standard;
- *Information delivery mechanisms*—Inefficient and segmented information delivery mechanisms are among the chief obstacles limiting the provision of information on standards to SMEs. The Government of Lebanon has demonstrated its ability and commitment to providing accessible information to its citizens through government initiatives. However, these successes have not been effectively transferred to areas that could assist SMEs in gaining better access to information on foreign market requirements. As such, firms draw on services and information networks provided by developed countries that are oriented inwards or towards markets of their own interests, or to private sector providers of these services. Improved and less costly access to information and communication technologies is also needed to improve the efficiency of these information delivery services in Lebanon;
- *Outreach capacity*—Institutions should also increase their outreach capacity and raise awareness about existing services. Membership in public and private sector institutions that serve SMEs is limited, and thus alternative mechanisms are needed to disseminate information about available services and new developments that can be of interest to SMEs.

These gaps can be attributed to several structural reasons, including: limited human and financial resources preventing institutions from improving the delivery of services; dependency of the public sector on donor-financed projects for improving service delivery and assuring sustainability; as well as the ad hoc manner through which information is collected and managed in various institutions. There is also a disconnect between the needs of users of standards and the ability of providers of standards to meet those needs on a proactive basis. The strengthening of business development service providers could improve the delivery of services, but only if networks are also put into place to consolidate information, avoid duplication of efforts and prevent competition between agencies.

The *ex post* assessment demonstrates that the existing public policy interventions have not been able to fully achieve their goals, as framed within the context of the assessment's outcome indicators. Indeed, while international sources of information have been able to reduce the number of rejected shipments to the United States market, Lebanese interventions had little to do with this success. Conversely, despite the sizeable assistance being targeted towards enhancing quality infrastructure and understanding about the European marketplace, SMEs still tend to export to Arab markets and concentrate on one or two product areas. Export volumes have thus not significantly increased or become more diversified. Furthermore, while investments in new technologies to achieve compliance with more stringent standards have taken place, larger firms remain better positioned to benefit from assistance in these areas than SMEs, owing to constraints in financial and human resource.

These findings demonstrate that there is a need to improve the delivery of services to help SMEs to overcome externalities associated with imperfect information markets. Corrective measures are thus proposed to improve access to information for Lebanese SMEs.

5. Corrective measures recommended

The challenges raised above necessitate policies and institutions aimed at improving access to information on standards to enhance SME competitiveness in Lebanon. Based on the previous *ex post* analysis, three plausible scenarios for responding to these challenges are envisioned and summarized below.

(a) *No action scenario*

The no action scenario considers the effectiveness of existing government policies and institutions in achieving policy objectives in the near future. This scenario takes into consideration current government policies and initiatives to upgrade the Libnor website and to establish WTO enquiry points that can respond to requests for information received from WTO Member States. However, in view of the previous analysis, it is not expected that this scenario will improve access to information for SMEs in the absence of other interventions. Indeed, causal chain analysis would lead one to forecast that the difficulties associated with access to information for SMEs in Lebanon would be accentuated in the absence of corrective and enhancement measures. This will be primarily due to the expected increase in demand for timely information on standards and compliance requirements that will be needed by SMEs to respond to increased trade liberalization and competition both domestically and abroad. This increase in demand, coupled with poor coordination between relevant institutions and public and private sector service providers, will place additional strain on existing information delivery mechanisms, which will continue to be unable to supply accessible and appropriate information on standards to Lebanese producers. This will in turn increase the cost of information, discovery and innovation and hinder progress towards improving SME competitiveness.

(b) *Libnor Plus*

The second approach proposes a Libnor Plus scenario, which entails a strengthening of Libnor beyond what is currently envisioned. The advantage of this scenario is that it is based on expanding the scope of an existing information delivery system through targeted interventions with moderate cost implications. Under this scenario, resources would be directed towards improving the dissemination of information on new standards being developed in Lebanon and abroad through various channels, such as newsletters and portals accessible to local business associations and SMEs.

This approach would also incorporate instruments for enhancing the role of Libnor as a WTO TBT Enquiry Point that would not only respond to requests for information from foreign governments, but would also supply information to Lebanese firms on standards under adoption and development by other WTO Member States via their WTO Enquiry Points. This would require close collaboration with the Ministry of Economy and Trade, which would share responsibility for managing the TBT Enquiry Point in Lebanon, as well as improving networking with the SPS Enquiry Point at the Ministry of Agriculture. By institutionalizing a system for disseminating information on standards under preparation by other countries, Lebanon could also coordinate consultation with the Lebanese private sector stakeholders and SMEs to solicit their comments and concerns regarding standards that may emerge as future barriers to Lebanese exports in foreign markets. This improved information and communication network between Libnor, enquiry points and the private sector could also have secondary benefits for improving standard-setting in Lebanon, whereby local firms would be made aware of new projects for standards development abroad that might have implications for the preparation of Lebanese norms.

However, despite the advantages that a Libnor Plus scenario presents for improving the supply and dissemination of information on standards in Lebanon, the scenario is dependent on the effective establishment and enhancement of WTO notification and information delivery systems in Lebanon. The approach would also require improved coordination with other ministries and institutions responsible for the adoption and dissemination of information on standards and technical regulations in Lebanon. Complementary programmes would also be needed to provide the challenge of providing technical assistance for assisting SMEs to understand and comply with standards adopted domestically and abroad.

(c) *SME Help Desk*

The third alternative entails a comprehensive corrective measure based on improving coordination between relevant agencies and consolidating information access through a single source by establishing an SME Help Desk. This final industrial policy option is examined by applying causal chain analytical tools at the four levels of impact assessment. The activities stage details the scope of the measure to be undertaken and the procedures through which the activity is implemented, and how. The output stage examines the direct results of the intervention. The outcome stage assesses the results in view of the purpose of the intervention. The impact stage examines the ability of the scenario to meet the development objectives of the policy in terms of enhancing SME competitiveness within the Lebanese industrial policy environment.

(i) *Activity stage*

The SME Help Desk would operate as a cross-agency public-private network with a small secretariat that coordinates access to information from different sources. The Help Desk is an empowered network with a mandate that is not intended to replace any existing agencies, but to support them and facilitate coordination between institutions as well as draw on information resources available from existing Lebanese and non-Lebanese sources. In time, the Help Desk could evolve into a one-stop shop for accessing information on standards and foreign market requirements, as well as best practices for complying with requirements. Additional services could be later provided in terms of data collection, surveys, and SME monitoring. As a coordination mechanism, the Help Desk would encompass both public and private sector service providers so as to provide consolidated information to SMEs looking to improve their competitiveness.

Institutional partners could include the Ministry of Industry, the Ministry of Economy and Trade, the Chamber of Commerce, Industry, and Agriculture of Beirut and Mount Lebanon, and IRI. As in the case of Lebanon's Informs Portal, access to Help Desk services could be provided online or by e-mail, telephone or fax in order to accommodate the information channel preferred by the SME. The Help Desk would need budgetary support for its establishment, but could achieve financial sustainability by generating revenue through advertising, search engines, directories and links to companies, consultancies and intermediaries that can assist firms to comply with export requirements and access foreign markets.

(ii) *Output stage*

The proposed measure would coordinate information delivery systems, improve public outreach and awareness-raising capacity thanks to economies of scale, and reduce time and costs for SMEs seeking to access information on standards. Table 4 summarizes the major output stage indicators and the likelihood of achieving the targeted impacts.

TABLE 4. OUTPUT INDICATORS AND IMPACTS

Indicators	Impact	Likelihood
Improved networking between Help Desk partner institutions	↑	High
Number of SMEs using services linked to Help Desk	↑	High
Number of hits on the websites of networked standards-setting bodies	↑↑	High
Time to identify relevant standards and procedures	↑	High
Time to acquire standards	↑	High
Cost to purchase standards	none	Low
Number of standards purchased	↑	Low

Note: Arrows indicate a positive or negative impact, and the intensity of the impact; double arrows indicate greater significance.

(iii) *Outcome stage*

The information provided by the Help Desk is expected to better prepare SMEs for production and export, and reduce the risk of rejected shipments. Access to additional information and lessons learned from successful export experiences will then encourage SMEs to expand their market base. This could encourage entry of new firms or diversification of product lines through better labelling, branding and certification, which would increase exports. This can be realized if an improved business environment, as well as easier access to investment financing, complements increased access and understanding of information on standards in Lebanon. In such a case, SMEs can seek to pursue higher quality and performance standards by investing in new technologies and modernizing of their production processes and business operations. The major outcome indicators and impacts associated with the intervention are summarized in table 5.

TABLE 5. OUTCOME STAGE INDICATORS AND IMPACTS

Indicators	Impact	Likelihood
Reduced number of rejected shipments	↑↑	Moderate
Volume of exports	↑↑	Moderate
Export diversification (by number of export markets)	↑↑↑	High
Export diversification (by number of product lines)	↑↑	Low
SMEs receiving certification of compliance with standards (ISO, eco-labels)	none	Low

Note: Arrows indicate a positive or negative impact, and the intensity of the impact; double arrows indicate greater significance.

(iv) *Impact stage*

Industrial policy in Lebanon is a product of national policies aimed at pursuing structural economic reforms that seek to improve the business environment, and at implementing international agreements that promote trade liberalization. These policy pillars are pursued within the larger objective of achieving sustainable development. Industrial policies focused on enhancing SME competitiveness must thus be viewed within the framework of these strategic objectives, which are listed in table 6.

TABLE 6. IMPACT STAGE INDICATORS AND IMPACTS

Indicators	Impact	Likelihood
Economic indicators		
• Competitiveness of SMEs	↑↑	Moderate
• Productivity of manufacturing SMEs (output/labour)	↑↑	Low
Social indicators		
• Employment creation	↑↑	Low
• Income generation	↑↑	Moderate
Environmental indicators		
• Consumption of natural resources	↑↑	Moderate
• Pollution (air, water, land)	↓↓	Moderate
Governance indicators		
• Improved inter-ministerial coordination	↑↑	High
• Stronger public-private partnerships	↑↑	High

Note: Arrows indicate a positive or negative impact, and the intensity of the impact; double arrows indicate greater significance.

The establishment of a functioning SME Help Desk that will focus on improving access to information about standards is expected to contribute to enhancing SME competitiveness. The number of SMEs engaged

in export is likely to increase, which may increase the size of SME operations. This may in turn generate new employment opportunities as well as expand middle management ranges among professionals engaged in quality assurance and trade operations. Strengthened quality and conformity assessment infrastructure and measures to facilitate the integration of SMEs into global value added chains would further enhance impacts.

C. POLICY LESSONS LEARNED

There are market failures associated with imperfect information and information externalities, but there are also government failures. Public policies can be too restrictive and sectors over-regulated or totally absent. Therefore, industrial policy, especially for Lebanon where data are scarce and information scattered, ought to be an interactive process with strategic cooperation between public and private sectors with the objective of eliciting information on business opportunities and constraints and in response, generating policy initiatives. The cost of purchasing standards is not the obstacle facing SMEs; rather, it is the time and technical understanding needed to identify and access the relevant standards, followed by the information and investment that may be needed to comply with those measures.

With respect to the proposed corrective policy, addressing the associated assumptions is critical, in particular ensuring political support and financial commitment by the Government. The policy can lead to two different new equilibriums: a much improved environment with positive impacts on competitiveness and sustainable development if the assumptions are met, or a worse, inefficient, and more complicated environment. The proper implementation of the policy and the empowerment of an SME Help Desk are thus vital.

SMEs in all ESCWA member countries face the same challenge of accessing appropriate and adequate information on standards. In an increasingly globalized world where production and trade are closely linked, accessing information and complying with domestic standards and technical regulations is as important as conforming to standards preferred in the international marketplace or required by foreign countries. However, access to information on standards remains cumbersome, complex and incomplete in most countries seeking to improve the competitiveness of their SME sector. Suggested measures to alleviate these challenges by improving networking, coordination, and information delivery systems, as well as the quality and accessibility of relevant information, are thus not only applicable to Lebanon, but to other countries of the ESCWA region as well.

III. INDUSTRIAL ZONE POLICIES AND THEIR IMPACT ON SME COMPETITIVENESS AND ENVIRONMENTAL PERFORMANCE

The number of industrial zones in the ESCWA region has been increasing and many more are planned for development in the coming years. These zones are the outcome of industrial policies seeking to expand opportunities in the manufacturing sectors, while also creating areas where pockets of growth can be harnessed in a conducive, enabling environment. The geographic concentration of manufacturers and service providers in industrial zones can allow for productivity gains and enhanced competitiveness resulting from economies of scale and spill-over effects made possible by the sharing and transfer of knowledge and know-how between innovators and second movers. These benefits also tend to include easier access to business support services, improved transportation networks linking industrial zones to trade corridors and ports, and lower costs associated with building and operating environmental services and infrastructure.

A. INDUSTRIAL ZONE POLICIES IN THE ESCWA REGION

Industrial policies that promote the establishment of industrial zones are generally pursued to achieve one or more of the following development objectives: (a) foster investment and, in particular, attract foreign direct investment; (b) diversify trade portfolios through domestic manufactures or re-exports; (c) decentralize economic development to rural and remote areas so as to alleviate urban migration or relocate polluting industries to unpopulated areas; (d) facilitate industrial clustering, network and technology transfer within and between industries along a value chain; and/or (e) encourage entrepreneurship and the generation of new employment opportunities by offering special incentives and business support services tailored to the needs of targeted industries, including SMEs. While the establishment and expansion of industrial zones in ESCWA member countries may seek to respond to one or more of these development objectives, it is important that policy makers and planners carefully define the strategic objectives sought by an industrial zone so that the impacts and effectiveness of these initiatives can appropriately be tailored and assessed over time.

The Unified Industrial Development Strategy for the Arab States of the Gulf Cooperation Council identifies the construction of industrial zones and the development of appropriate infrastructure in less developed areas as the basic instruments for realizing its industrial policy goals. While the Strategy is largely oriented towards promoting private sector initiatives in heavy industries, it also identifies the employment of nationals as one of its major objectives, as well as the creation of national value chains that link SMEs to larger firms.⁵⁶ The Strategy considers industrial zones as a means to achieve several policy goals, including SME development, employment generation and decentralized development. Members of the GCC have subsequently elaborated this strategy at the national level to also encompass environmental management considerations. For instance, in Oman, Saudi Arabia and the United Arab Emirates, wastewater, storm water and waste management services are incorporated in industrial zone planning from the onset. Industrial clustering is also pursued in Oman and Saudi Arabia as a strategy for establishing specialized industrial zones that cater to strategic economic sectors. This approach to industrial zone development is consistent with the general purpose of industrial policies, which are designed to either overcome market externalities or generate benefits from economies of scale.

In Yemen, the Third Five-Year Plan seeks to draw an industrial map that will facilitate the establishment of industrial zones that encourage the creation of small and medium-sized industries. The Plan also identifies the protection of the environment from industrial pollution as a policy objective.⁵⁷ Linking industrial zone policies with national initiatives seeking to generate income and employment opportunities

⁵⁶ Secretariat-General of the Cooperation Council for the Arab States of the Gulf, Unified Industrial Development Strategy for the Arab States of the Gulf Cooperation Council (Revised Version) 1421 A.H. – 2000 A.D (in Arabic).

⁵⁷ “Yemeni ministry reports on five-year plan for economic growth”, *Yemen Observer* website, Sana’a (in English), 21 January 2006.

from SMEs operating in the fisheries sector has important implications for sustainable development in Yemen. This is because several of the industrial zones being planned will be located along the coastline near fishing ports, and some of these zones will cater to large industries (such as petroleum and petrochemicals) that may release heavy metals into marine waters and impact the sustainability of the fisheries sector. Some Yemeni fish exports have already been denied access to export markets because of high concentrations of mercury.⁵⁸

In the occupied Palestinian territories, where nearly all employment in the private sector is generated by SMEs, policy makers have repeatedly pursued the idea of establishing industrial zones as a way to attract investment and create employment opportunities for citizens.⁵⁹ The Palestinian Free Industrial Zone near Erez was established with this objective in mind, but has been non-operational owing to the local situation. An agreement signed between Turkey, Israel and the Palestinian Authority in November 2007 to establish industrial zones in the West Bank is based on the same principle of generating employment through investments in industrial zones.⁶⁰

Egypt has encouraged the establishment of industrial zones since it promulgated Investment Law No. 8 in 1997. The number of industrial zones in Egypt has since climbed to 42, with zones located in 19 governorates throughout the country by 2007.⁶¹ In more than half of these zones, land is allocated free of charge by the General Authority for Investment and Free Zones (GAFI), which is responsible for managing industrial zones. While this management structure places Egyptian industrial zone policies firmly within an investment promotion framework, GAFI also strongly supports industrial clustering as a means to facilitate technology transfer and the integration of services needed to support SME competitiveness.⁶² Several industrial zones in Egypt are concentrated in certain industries, including sectors that are dominated by SMEs.

Egypt is also seeking to market industrial clusters as a means to attract trading partners of growing importance to the Egyptian economy, such as China and the Russian Federation.⁶³ Rather than building an industrial zone and then soliciting investment, this strategy targets other countries, which then become partners in the establishment of an industrial zone catering to the needs of investors from that country. Qualified industrial zones are another type of specialized zone promoted in Egypt. A protocol signed between Egypt and the United States in 2004 authorized the establishment of qualified industrial zones where firms can secure preferential access to the United States market based on specific rules of origin requirements. As will be noted below in this chapter in the presentation of the Jordanian case-study, these zones have helped to stimulate investment in certain industries, and primarily in the garment sector. While the Jordanian experience with qualified industrial zones (QIZs) is often deemed more successful in terms of improving the export performance of these industries, national employment generation in QIZs has been more successful in Egypt. The articulation of policy targets and identification of indicators for assessing the

⁵⁸ For more information, see ESCWA, *Trade and Environment Dimensions of the Fisheries Sector in the Arab Countries: the Case of Yemen and Oman* (E/ESCWA/SDPD/2007/WP.2), 30 October 2007.

⁵⁹ Stated by Ahmad Yusuf, adviser to the Palestinian Prime Minister, during an interview with Muhammad Abu-Khudayr, which was carried on the Palestinian newspaper Al-Quds website on 13 October 2006: "Palestinian PM's aide praises Qatari mediation initiative", Al-Quds website, Jerusalem (in Arabic), 13 October 2006, p. 1, *BBC Monitoring*.

⁶⁰ BBC Monitoring Europe and Turkish News Agency Anatolia, "Turkey, Israel, Palestinians sign accord to establish industrial zones", Ankara, 13 November 2007. Available at: <http://acturca.wordpress.com/2007/11/13/Turkey-Israel-Palestinians-sign-accord-to-establish-industrial-zones/>.

⁶¹ See: <http://www.gafinet.org/overview.htm>.

⁶² Ministry of Investment, Egyptian Investment Portal, "Incentives based zones", available at: http://www.investment.gov.eg/MOI_Portal/en-GB/Investment/Incentives+Based+Zones/.

⁶³ Andrew England, "Egypt woos China and Russia with industrial zones", *Financial Times* [London 2nd edition] 16 March 2007, p. 7, available at: <http://proquest.umi.com/pqdweb?did=1235039011&sid=5&Fmt=3&clientId=22985&RQT=309&VName=PQD>.

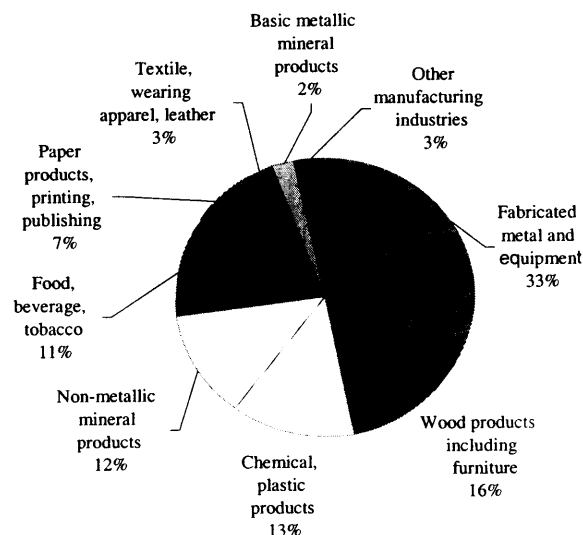
impact of industrial zones on national economies is thus an important tool for policy makers seeking to determine the effectiveness of certain industrial policy interventions in achieving development goals.

B. INDUSTRIAL ZONES AND SMES IN THE UNITED ARAB EMIRATES

The success of free zones and industrial zones in Dubai has stimulated the development of a number of new zones in the United Arab Emirates and the region. According to a recent report,⁶⁴ there are 23 free zones in the United Arab Emirates catering to the industrial, trade and services sectors. While not all industrial zones are free zones, manufacturers in industrial zones benefit from most of the same incentives as those based in free zones. These include customs duty exemptions on raw material and machinery imports for industrial enterprises, corporate and personal tax exemptions, and 100 per cent repatriation of capital and profits provisions. In addition, industrial enterprises operating in industrial zones and adding 40 per cent added value locally benefit from tariff-free access to GCC markets, which as a benefit that is not extended to free zone tenants. However, companies established in free zones can benefit from 100 per cent foreign ownership, customs duty exemptions on all imports destined for export and re-export outside the United Arab Emirates, and no restrictions on foreign employment. Companies located in both of these economic zones usually benefit from infrastructure services including electricity, water and telecommunications, as well as environmental (such as waste treatment) and business support services (such as export assistance). The industrial policy promoting the development of industrial zones and free zones in the United Arab Emirates is thus largely centred on attracting investment and positioning the country as a regional hub for commerce.

The establishment of a new industrial zone is also in the pipeline. Currently under construction, Dubai Industrial City (DIC) occupies an area of 52 km² and is adjacent to the Jebel Ali Free Zone. It is planned to host companies engaged in the production of machinery and mechanical equipment, transport equipment, base metal, chemicals, food and beverage and mineral products. A special zone for SMEs is planned over an area of 1 km². DIC will also operate a centre for industrial standards (Makayees) to enforce quality, health, safety and environment requirements and criteria, and accordingly issue complying companies the Dubai Quality Mark. Without this mark, companies will not be allowed to produce in the DIC.⁶⁵

Figure IV. Distribution of Dubai's manufacturing enterprises according to area of activity



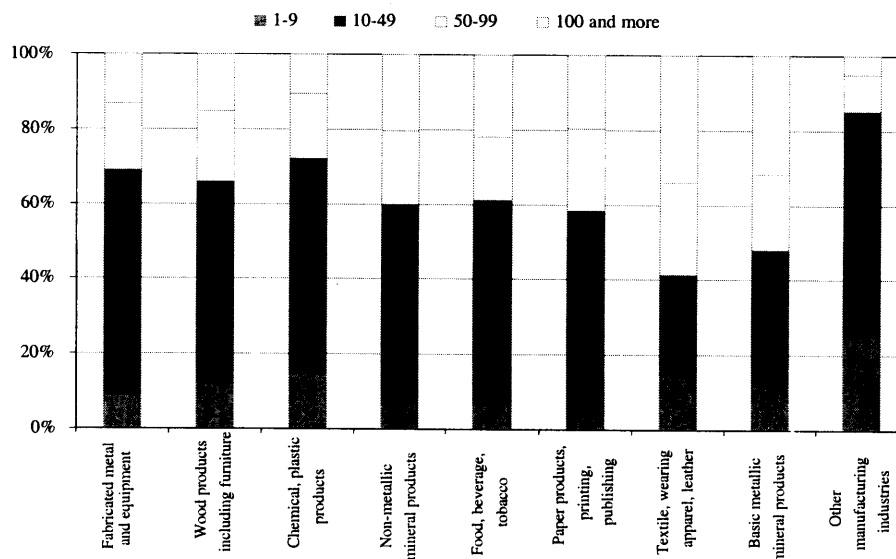
Source: The Economic Bulletin, August 2005, "Industrial Subcontracting, Partnership and Exchange", volume 2 – issue 14 (issued by the Dubai Chamber of Commerce and Industry).

⁶⁴ WTO, "Trade Policy Review, Report by the United Arab Emirates", March 2006 (WT/TPR/G/162), available at: <http://docsonline.wto.org/DDFDocuments/t/WT/TPR/G162.doc>.

⁶⁵ Dubai Industrial City, <http://www.dubaiindustrialcity.ae/>.

While the growth experienced in the United Arab Emirates is largely attributed to increased revenue from oil production and services (including trade), the manufacturing sector contributes a healthy 13 per cent of GDP.⁶⁶ One third of manufacturing enterprises in the United Arab Emirates are located in the Emirate of Dubai (1,177 firms) and are engaged in diverse activities, including metal fabrication and the production of wood, chemical and plastic products, as detailed in figure IV. The majority of these enterprises (84 per cent) have less than 100 employees, and can therefore be considered medium-sized or small based on definitions of SMEs prevalent in the GCC countries.⁶⁷ The share of manufacturing firms with fewer than 100 employees in each subsector is shown in figure V, which also illustrates the dominance of SMEs in the manufacturing sector. The liberal economic policies undertaken in Dubai and the other Emirates have thus helped the country to attract investment and grow, and have apparently enhanced SME competitiveness.

Figure V. Share of firms in Dubai according to number of employees per manufacturing sector (2004)



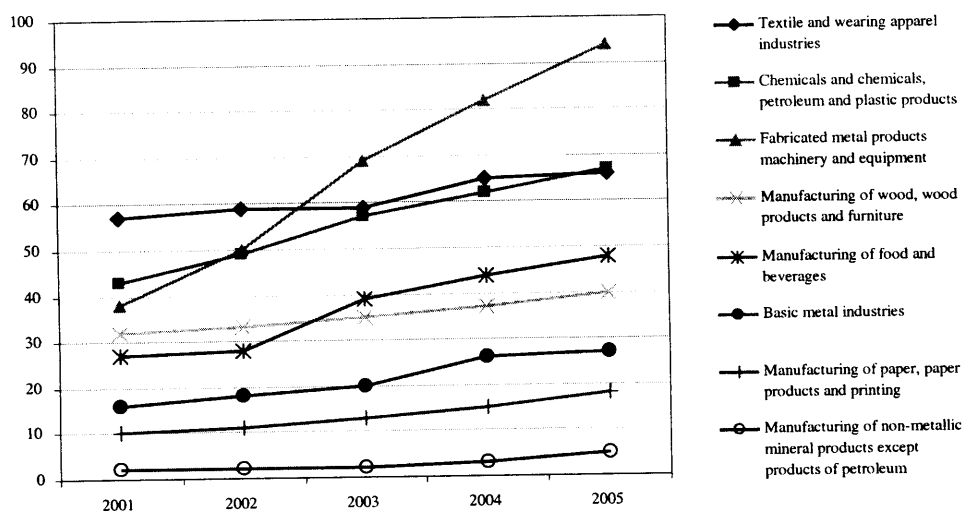
Source: Generated by ESCWA based on data from The Economic Bulletin, August 2005, "Industrial Subcontracting, Partnership and Exchange", volume 2 – issue 14 (issued by the Dubai Chamber of Commerce and Industry).

Part of the expansion of the manufacturing sector can be attributed to the development and expansion of industrial zones in the United Arab Emirates. For example, the manufacturing sector in the Jebel Ali Free Zone experienced consistent growth in the number of firms across sectors between the years 2001 and 2005, as illustrated in figure VI. Given that over half of all industrial establishments in the Emirate of Dubai are Jebel Ali Free Zone (JAFZ) tenants (535 establishments in 2005), and since the great majority of industrial companies in Dubai have less than 100 employees, it is probable that most of the JAFZ industrial companies are SMEs. SMEs engaged in manufacturing have thus been among the beneficiaries of the enabling environment fostered by JAFZ and associated policies promoting the development of industrial zones.

⁶⁶ Based on preliminary GDP figures for 2005 provided in International Monetary Fund Country Report No. 06/256, July 2006.

⁶⁷ Dubai Chamber of Commerce and Industry, *The Economic Bulletin*, August 2005, volume 2 – issue 14.

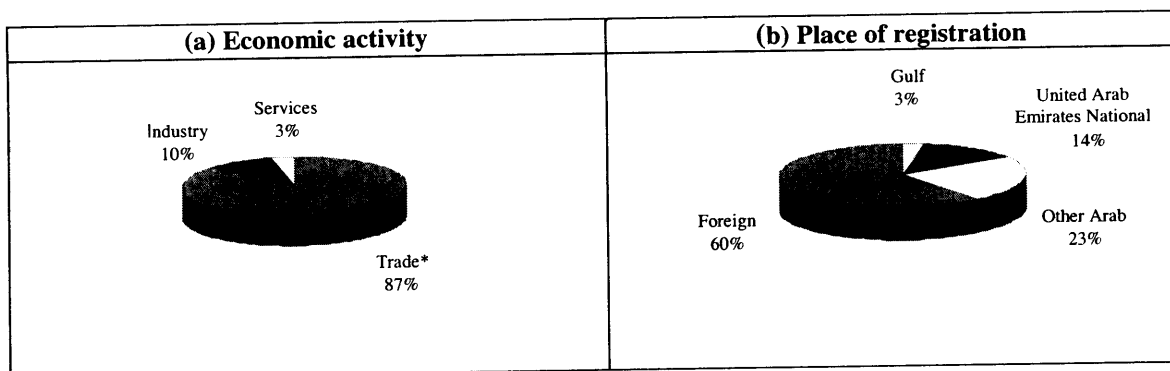
Figure VI. Growth in the number of industrial establishments in the Jebel Ali Free Zone (2001-2005)



Source: Dubai Municipality, available at: <http://vgn.dm.gov.ae/DMEGOV/OSI/dm-osi-mainpage>.

The impact of Dubai's industrial zone policies on SME competitiveness might thus be assessed by examining: (a) the number of new entrants of SMEs in the manufacturing sector; and/or (b) the growth in output and export values. However, care must be taken when identifying indicators for assessing impacts. For instance, while the size of the industrial sector has been expanding (in terms of number of firms and output), it still only accounts for 10 per cent of economic activities at the Jebel Ali Free Zone (see figure VIIa). In addition, a review of ownership structures indicates that around 60 per cent of all Jebel Ali Free Zone establishments were owned by foreigners in 2005 (see figure VIIb), which probably resulted in the repatriation of profits to home countries based on free zone status. Furthermore, establishments owned by non-Gulf Arab countries realized the greatest growth; their number increased fivefold during the period from 2001 to 2005. In comparison, foreign, national and Gulf-owned companies witnessed strong growth rates by almost doubling during the same period; however, their performance was not as remarkable as that of foreign-owned firms.

Figure VII. Distribution of establishments at the Jebel Ali Free Zone (2005)



Source: Dubai Municipality, available at: <http://vgn.dm.gov.ae/DMEGOV/OSI/dm-osi-mainpage>.

* Including warehouses.

While there have been positive impacts with regard to SME competitiveness, resulting from the open industrial policies being pursued by the United Arab Emirates and the enabling environment afforded by the

Jebel Ali Free Zone, benefits have accrued to foreigners more than nationals at the enterprise level. While this may support national development objectives associated with positioning Dubai as a regional hub for investment and commerce, its effectiveness in reaping benefits for nationals from enhanced SME competitiveness has not been as significant.

Nevertheless, Dubai remains an attractive destination for SMEs relative to other Emirates in the United Arab Emirates. For instance, manufacturing activities in Abu Dhabi tend to be dominated by larger firms in which manufacturing enterprises employ more than 100 workers on average.⁶⁸ Food companies are among the largest in size in Abu Dhabi, with a little less than 200 employees per enterprise on average. However, manufacturing establishments in the Emirate of Ajman are mostly small and medium-sized enterprises. For instance, the basic metals industry has on average 80 workers employed per plant. Larger manufacturers do exist, such as in the local clothing industry which employs 140 persons per establishment on average. In Sharjah, industrial zones cover around 40 km² or 40 per cent of the total land area of the Emirate. Among them is the Hamriyah Free Zone, which was built in 1995 and houses more than 1,100 companies, around a fifth of which are engaged in manufacturing.⁶⁹ However, production in Sharjah is closely linked to heavy industries that involve larger enterprises.

It is also promising to note that industrial zones in the United Arab Emirates have incorporated environmental management and planning into their operations to some degree. According to Jebel Ali Free Zone rules, tenants are responsible for treating liquid industrial waste to the required applicable standard, depending on whether the effluent is to be released in the sea, land or municipal sewer system. The rules go further, however, by stating that “as a policy, the client shall explore all possibilities of recycle/reuse and recovery of wastes to the satisfaction of JAFZ Authority, prior to any approval for disposal of the same”.⁷⁰ Solid hazardous waste may be disposed of at Dubai Municipality’s hazardous waste treatment plant and disposal facility established in the Jebel Ali Free Zone in 2000. Disposal in this facility is conducted on a fee basis, and only if it meets the technical guidelines established for this purpose. Environmental inspections are regularly conducted by the JAFZ Authority and violations are subject to fines that may reach \$54,000.

In Sharjah, all tenants in the Hamriyah Free Zone observe rules set out in the environmental health and safety manual.⁷¹ The manual stipulates that liquid industrial waste should be treated by the tenant and approved for discharge by the appropriate local authority. However, the free zone does not operate a facility for handling hazardous wastes, whether solid or liquid, and disposal of such substances is also arranged with the concerned authorities external to the zone.

While an assessment of the impact that these environmental rules have on SME competitiveness was not conducted in the United Arab Emirates, it may be indicative that SMEs have continued to flourish in the Jebel Ali Free Zone despite their rigorous approach to environmental management, while the more lax approach to environmental management in Sharjah’s free zones has attracted larger industries that tend to be more polluting.

C. JORDANIAN CASE STUDY

The SME economy is a major source of employment and income in Jordan. Policies and initiatives have been launched to encourage the establishment and upgrading of SMEs in view of enhancing their

⁶⁸ الصناعة في إمارة أبو ظبي، ٢٠٠٦، غرفة تجارة وصناعة أبو ظبي that sometime have less than 100 employees.

⁶⁹ Compiled from the list of Hamriyah Free Zone tenants available at <http://www.hamriyahfz.com/> (accessed on 23 March 2007).

⁷⁰ Jebel Ali Free Zone, “JAFZA Rules”, fourth edition, 2005, available at http://www.jafza.co.ae/pdf/FREEZONE_RULES.pdf.

⁷¹ United Arab Emirates, Government of Sharjah, Hamriyah Free Zone Authority, “Engineering, Environmental Health & Safety: Investors Information Kit”, 1 June 2004. Available at: <http://www.hamriyahfz.com/en/downloads/Information%20Kit-010604.pdf>.

competitiveness and generating income opportunities for Jordanian nationals. Jordan has also embarked on an ambitious plan to establish new industrial zones and free zones throughout the country. The objective of these policies has been to encourage enterprise development and investment, especially in the manufacturing industries, with the ultimate aim of providing the framework to take advantage of recently forged free trade agreements and creating employment opportunities.

Jordan has witnessed an investment boom over the last five years, particularly in Amman, the Dead Sea and Aqaba, and in key services such as the construction and financial sectors. The industrial sector represented about 17 per cent of GDP in 2007, and national income has been generated by fast-rising exports mainly driven by the apparel, mining, pharmaceutical and tourism industries. However, the sectors dominated by small and medium-sized producers are facing greater international and internal competitive pressures due to trade liberalization and increasing production costs.

The establishment and expansion of industrial zones was thus initially pursued with the idea of providing better access to the infrastructure needed to allow investors and SMEs to take advantage of Jordan's geographic location and the opportunities that the regional market can bring. However, as Jordan embarked on larger infrastructure and economic development projects, there was increasing awareness of the importance of considering the environmental dimensions of these and related development projects. Hence, the Ministry of Environment was established in 2005 to take the leading role in overseeing and enforcing environmental measures.

At the forefront of environmental challenges in Jordan is managing and sustaining of water resources. In terms of industry, the Ministry of Environment recently conducted a field study with the Municipality of Greater Amman to identify major environmental challenges in the three new areas (Muaqar, Sahab, and Geza) added under the Municipality's coverage. Industrial establishments in all three areas were examined, whether they were located inside or outside industrial estates. The results of the study found that the environmental challenges are alarming and highlighted environmental consequences of industrial activity in the absence of appropriate environmental measures. Efforts are thus under way to strengthen legal and institutional frameworks for environmental monitoring and enforcement.

In addition, the Aqaba Special Economic Zone Authority (ASEZA), together with the Jordan Environment Society, organized a clean-up campaign in the Governorate of Aqaba. The campaign involved 200 participants that included students, community representatives and some public officials with the objective of gathering waste that had collected along to the Aqaba coastline. The campaign demonstrates the increasing awareness about environmental concerns in industrial areas in Jordan, and the importance of disseminating knowledge of waste management and recycling. Furthermore, it highlights the readiness of public and private authorities to cooperate with civil society to mitigate adverse environmental impacts and achieve sustainable development.

This case-study thus examines the impact of industrial zone policies in Jordan and the ways in which it impacts SME competitiveness and the ability to manage and monitor sound environmental performance.

1. *Policy framework*

(a) *Jordanian policies on industrial zones and SME competitiveness*

(i) *The National Agenda*

The National Agenda represents a change in the approach to strategic planning in Jordan.⁷² Initiated in 2005 and issued in 2007, the resulting document provides a comprehensive development plan for Jordan that is the outcome of a consultative process involving representatives from the Government, Parliament, civil society, the private sector, media and political parties. The strategic document is now used as a reference by

⁷² Government of Jordan, *National Agenda: The Jordan we strive for (2006-2015)*.

policy makers in designing development initiatives across sectors. The National Agenda is structured around eight themes, namely:

- Political development and inclusion;
- Justice and legislation;
- Investment development;
- Financial services and fiscal reform;
- Employment support and vocational training;
- Social welfare;
- Education, higher education, scientific research and innovation;
- Infrastructure upgrading.

Jordan's industrial policy and SME development strategy are articulated in the third theme of the National Agenda under investment development, which calls for coherent decision-making in the areas of investment, trade and enterprise development.⁷³ The strategy takes a horizontal and vertical approach to industrial policy formulation by advancing cross-cutting initiatives to improve the enabling environment, as well as by targeting priority sectors for development (apparel, pharmaceuticals, food and beverages, minerals, iron and steel, furniture and services). It also proposes initiatives to centralize and streamline support for SME development in the areas of investment, financial and technical support through the restructuring of public institutions. This goal is being pursued through efforts to improve the functionality and structure of the Jordan Industrial Estates Corporation (JIEC), the Free Zones Corporation (FZC), the Jordan Investment Board (JIB) and the Jordan Enterprise Development Corporation (JEDCO), which is responsible for SME support programmes, by grouping these units under one umbrella organization called the Jordan Agency for Enterprise Development (JAED). The agenda thus forges a close policy relationship between investment promotion and SME development, and the role that industrial estates can play in achieving these twin objectives.

The adoption of the National Agenda demonstrates a departure from previous industrial policy frameworks put forth by the Government. For instance, the Ministry of Industry and Trade led a collaborative effort to prepare a national industrial policy for Jordan in 2001 that included coverage of industrial zones, SME support schemes and measures to enhance export competitiveness. While the draft industrial policy was never adopted because of a lack of human and financial resources at the time, a shift in policy orientation is evident. Jordanian policies on industrial zones and SME competitiveness are now squarely positioned within the context of attracting investment to Jordan, with investment development constituting an end goal of the National Agenda, and not a means to achieving an end. This investment orientation is further demonstrated by the JIEC mission statement, which is mandated to enhance the investment climate while protecting the environment, supporting the dissemination of technology and facilitating the distribution of development throughout the country.⁷⁴

(ii) *The National Industrial Map*

On 21 March 2007, the Government of Jordan approved the National Industrial Map, which identifies existing and planned industrial zones, free zones and industrial areas in Jordan. The pilot initiative seeks to map industrial development and forecast expansion plans until the year 2030. In doing so, it seeks to achieve the following goals:

- Protect environment from the randomly distributed industrial estates;
- Encourage specialization in industrial estates;

⁷³ Ibid., p. 18.

⁷⁴ JIEC, "Mission", available at: <http://www.jiec.com/j2ee/servlet/CommandControllerServlet?formAction=HomePage&homeLang=0>.

- Facilitate development of the business environment for SMEs;
- Provide proper infrastructure, especially with relation to environmental measures.

The map also identifies primary and secondary transportation networks and the location of heavy and light industries so as to allow for better visualization of the proximity and infrastructure associated with existing and planned industrial estates.

A Higher Committee to supervise the implementation of the Industrial Map was established under the Ministry of Industry and Trade. The Committee includes representatives of the Ministry of Environment, the Ministry of Water and Irrigation, and the Ministry of Municipal Affairs, as well as the Jordan Industrial Estates Corporation, the Free Zones Corporation, the Jordan Investment Board, and the Jordan Authority for Enterprise Development.

(iii) *Special industrial estates and qualified industrial zones*

Industrial estates in Jordan are operated by the public and private sectors. Industrial estates operated by the Government are managed by JIEC. Industrial estates operated by the private sector are managed by private companies that are given permission to operate by the Committee of the Special Industrial Estates, which is based at the Ministry of Industry and Trade. A licence is granted according to the Bylaw of Establishing Special Industrial Cities Estates No.117 for the year 2004.

An agreement signed between Jordan and the United States in 1997 allows duty-free and quota-free access to the United States market for goods produced in qualified industrial zones (QIZs) established in Jordan. The agreement was a means to encourage trade between Jordan and its neighbours as well as provide Jordanian producers with preferential access to the United States market. A public or privately managed industrial zone may be designated a QIZ.

(b) *Jordanian policies on industrial zones and the environment*

National concern regarding the linkages between industrial zone development and the protection of the environment emerged when Jordan initiated establishment of QIZs and began negotiating a free trade agreement with the United States, which ultimately included environmental provisions.⁷⁵ Strengthening of the legal and institutional framework for environmental protection ensued, as well as initiatives to link the environment to industrial development. The former Minister of Energy Mr. Wael Sabri stated in November 2000 that Jordan had started paying particular attention to the environment and that the “industrial cities that the government is establishing are good models for the protection of environment and the combating of pollution”.⁷⁶ Some of the national policies and instruments adopted on the environment with relevance to industrial zones are detailed below.

(i) *The National Agenda*

Environmental issues in the National Agenda are addressed within the context of the eighth theme, which focuses on upgrading infrastructure. Specifically, this policy area oversees the development of water resources, expands effective water use by leveraging non-conventional water sources, upgrades wastewater treatment and water reuse for industry and agriculture, reduces air pollution, improves cost-effective energy supplies, and improves waste management, including the management of hazardous and chemical waste generated by industry. The upgrading of transportation infrastructure is also included within this framework. Performance targets are proposed to measure the success of policy interventions through 2017. The policy thus established a firm linkage between environmental protection and the environmental services needed by industry to develop in a sustainable manner.

⁷⁵ Agreement between the United States of America and the Hashemite Kingdom of Jordan on the Establishment of a Free Trade Area, 24 October 2000.

⁷⁶ Statement of His Excellency Mr. Wael Sabri as delegated representative of His Majesty King Abdullah, cited in Ruba Saqr, “Realistic recommendations on environment goal of geologists conference”, *The Jordan Times*, 6 November 2000.

(ii) *The Environment Protection Law*

The Environment Protection Law No. 52 of 2006 requires the conducting of environmental impact assessments (EIAs) in development planning and calls for the issuance of instructions to guide decisions regarding the location of development projects. The by-law regulating the conduct of EIAs was adopted by the Council of Ministers. The regulation requires that EIAs should be conducted at the initial planning phase of power plants, industrial factories, wastewater treatment plants and solid waste disposal sites prior to their approval for licensing.

As stated above, the Ministry of Industry and Trade authorizes the establishment of private industrial estates. However, while the Ministry of Industry and Trade registers the company that operates the industrial estate, other institutions are involved in the granting of licences and the monitoring of their business operations, namely the Ministry of Environment and the Ministry of Municipalities and Rural Affairs. Instructions for choosing the location of development projects and licensing new firms were issued by decision of the Ministry of Environment in 2007. The instructions cover agricultural, commercial, industrial, housing, and extraction projects and all other related projects that might impact the environment. The instructions cite regulations on land use and the Industrial Map as reference documents that should support the making of decisions on the location of development projects. The guidance also notes that care should be taken to ensure that proposed projects are located a minimum distance from residential areas, natural resources and from other development projects.

The Ministry of Environment has also drafted conditions and criteria for establishing industrial estates and free zones at the request of the Prime Ministry. These conditions primarily relate to the geographic proximity of industrial zones to water resources, but have not yet come into effect. The continued strengthening of the legislative and institutional framework demonstrates the Government's commitment to incorporating environmental considerations in industrial development, including that of industrial zones.

2. Scope of assessment

The objective of this impact assessment is to examine the ability of industrial zone policies and programmes to improve the competitiveness of SME manufacturers in Jordan to operate in an environmentally sustainable manner. Within the context of the above-mentioned policy framework, the assessment is broken up into two parts, whereby it first seeks to determine the effectiveness of industrial zones as a policy and planning tool to enhance the development and competitiveness of SMEs; the second part assesses the ability of industrial zones to ensure the sound environmental performance of SMEs engaged in manufacturing. In doing so, the assessment differentiates between publicly and privately managed industrial zones in Jordan to determine whether different institutional arrangements have an influence on environmental management. The outcomes of the assessment seek to inform future policy-making regarding industrial zones and the enhancement of SME competitiveness in Jordan. The importance of this study stems from the ongoing debate on whether industrial growth and trade liberalization come at the expense of the environmental protection, socio-economic development, and SME competitiveness.

3. Methodology

The impact assessment consisted of several steps, which began with a consultation with members of the National Committee on Trade and Environment (NCTE) of Jordan in December 2006 at a round table hosted by the Ministry of Environment in Amman. The topic and scope of the study were identified through a demand-driven process with comments provided by members of the National Committee. A desk review of policy documents was followed by fieldwork, including interviews with government officials in various ministries and operators of several industrial zones. Descriptive case-study methods and consultative approaches were applied to examine cause-effect relationships associated with the enabling environment provided by industrial zones and the behaviour of SMEs.

In conducting the assessment, three types of industrial estates in Jordan were examined: public industrial estates; private industrial estates; and qualified industrial zones (QIZs). Industrial estates in special

economic zones (SEZs) were excluded from the analysis since these areas seek to promote manufacturing as well as service sector activities, such as hospitals and hotels. In addition, the Aqaba SEZ is established as an independent authority and operates outside the jurisdiction of the Ministry of Environment.

Since a comprehensive assessment of all industrial zones in Jordan was not possible owing to time and resource constraints, three industrial estates were targeted to support the analysis. The criteria for selecting these sample sites considered whether the estate was publicly or privately operated, the age of the estate, the diversity of manufacturing activities in the zone and their associated environmental effects. The sample consisted of the following:

- Public estate, namely the Abdullah II Ibn Hussein Industrial Estate, which was established by the Jordan Industrial Estates Corporation in 1984. This industrial zone is the oldest and largest industrial estate in Jordan and is located in Sahab, 12 km south-east of Amman on 253 hectares of land. The estate was fully occupied in 2006, with 347 enterprises employing 13,694 workers.⁷⁷ Establishments are diversified across various sectors, including food, engineering (metal fabrication and electronics), plastics and rubber, pharmaceuticals, chemicals, textiles, wood and metallic furniture, printing and packaging;
- Public estate/qualified industrial zone, namely the Al Hassan Industrial Estate, which was established in 1991 near Irbid, 72 km north of Amman. This estate was the first zone to receive QIZ status in Jordan, which it was granted in 1999. In 2006, the estate was home to 99 enterprises employing 22,434 workers on 118 hectares of land.⁷⁸ Most companies operate in the textile and apparel sector, while other industries include engineering, plastics and rubber, and pharmaceuticals;
- Private estate/qualified industrial zone: The Al Tajamouat Industrial City is a private industrial estate licensed and operated by Specialized Investment Compounds Co., a public shareholding company that has six banks as major shareholders. Established in 1994 in Sahab, 20 km from Amman, Al Tajamouat commenced business operations in 1995 and was designated a QIZ in 1999. It is currently seeking free zone status. Al Tajamouat is the first private estate to be established in Jordan, and has grown into the largest private industrial estate in Jordan. The estate encompasses a total area of 30 hectares and is home to 74 firms, of which 41 had QIZ status in 2006. The zone caters to medium to light industries, including the garment industry.

In conducting the analysis care was taken to examine SMEs as defined by the Government of Jordan based on the unified definition for SMEs adopted on 12 January 2005. The definition was formulated by a committee of public and private sector stakeholders convened under the Ministry of Industry and Trade. The definition takes into consideration both the number of workers and the amount of invested capital in a firm, as detailed in table 7.

TABLE 7. CLASSIFICATION OF FIRM SIZE IN JORDAN

Type of SMEs	Number of workers	Invested and/or registered capital (in JD)
Craft	1-9	Or less than 30,000
Small	10-49	30,000 or more
Medium	50-249	30,000 or more
Large	250 and more	30,000 or more

Source: Government of Jordan, Ministry of Industry and Trade letter to Prime Ministry, 23/1/7/23002, dated 12 January 2005.

⁷⁷ One hectare is equivalent to 10,000 m².

⁷⁸ JIEC, *Annual Report 2006*, available at: <http://www.jiec.com/j2ee/servlet/JSP/Public/AnnualReport2006.zip>.

(a) *Indicators for conducting the assessment*

Indicators used to assess the impact of industrial zoning as a policy and planning tool for enhancing the development and competitiveness of SMEs examine:

- The number of SMEs operating in industrial zones;
- Production costs;
- Incentive schemes;
- Export performance;
- Product diversification.

In examining the ability of industrial zones to improve environmental performance, including that of SMEs based in industrial zones, the following indicators were used:

- Availability of environmental services in industrial zones;
- Access to wastewater infrastructure;
- Availability of noise control systems;
- Cost of access to environmental services;
- State of environmental monitoring and enforcement;
- The risk of being subject to environmental inspection and penalties.

4. *Impact assessment*

Jordan has more than 65 commercial zones in the form of industrial estates, free zones and special economic zones. Commercial zones are mainly developed to enhance local economic development through attracting investment and increasing local income and employment. The number of industrial zones has been increasing over the last 15 years, with many new industrial estates in the pipeline, as seen in table 8.

While most publicly-managed industrial estates near Amman are operating at full occupancy, space is available in publicly-managed estates, particularly those in remote areas. However, only two private estates are close to full capacity: Al Tajamouat and Al Dulayl Industrial Estates, which are also designated as qualified industrial zones and were thus able to attract Asian garment investors during their initial establishment as QIZs.

TABLE 8. INDUSTRIAL ESTATES IN JORDAN

Type	Established prior to 1994	Established after 1994	To be initiated
Public	<ul style="list-style-type: none"> • Abdullah II Ibn Al Hussein (Sahab) – 1984 • Al Hassan Industrial Estate* (Irbid) – 1991 • Aqaba International Industrial Estate*/Phase I (located in Aqaba Special Economic Zone) – 2001 	<ul style="list-style-type: none"> • Al Hussein Bin Abdullah II Industrial Estate* (Karak) – 2000 • Ma'an Industrial Estate (Ma'an) – 2005 	<ul style="list-style-type: none"> • Al Muwaqqar Industrial Estate (Sahab) • Al Tafileh Industrial Estate • Al Zarqa Industrial Estate • Madaba Industrial Estate • Aqaba International Industrial Estate / Phase II
Private	<ul style="list-style-type: none"> • Al Zay Ready Wear Manufacture Co.* (Zarqa) – 1992 	<ul style="list-style-type: none"> • Al Tajamouat Industrial City* (Sahab) – 1994 • Al Dulayl Industrial Park* (Al Dulayl) – 1999 • Jordan Cyber City (Irbid)* – 2001 • Al Qastal Industrial Park* (Amman) • Al Hallabat Industrial Park (Al Dulayl) – 2004 	<ul style="list-style-type: none"> • Al Mushatta Industrial City (Amman) • Jordan Gateway Projects Industrial Zone (northern Jordan-Israel border) • Hillwood (Hashemite University) • Al Mawared, The Resources Company for Development and Investment

Source: Compiled from various sources; Note: Table excludes special economic zones.

* Indicates estate also has qualified industrial zone status.

(a) *Ability of industrial zones to enhance SME competitiveness*

(i) *Number of SMEs in industrial zones*

To assess the impact of industrial zones as a policy and planning tool to support SME competitiveness in Jordan, it is necessary first to determine the number of SMEs operating in industrial zones relative to large firms. In doing so, it is important to note that 98.7 per cent of all industrial establishments in Jordan are SMEs, based on the recently adopted classification of firms in Jordan. In 2006, the number of industrial establishments in Jordan reached nearly 21,000 firms, which employed a total of 173,000 workers.⁷⁹ Of these establishments, 510 were located in the five industrial estates being operated by the Jordan Industrial Estates Corporation, and over 20,000 were SMEs.

All firms in the Abdullah II Ibn Hussein estate are SMEs. The zone experienced a steady increase in occupancy from 1996 to 2003, when it reached full capacity at 400 firms.⁸⁰ In 2004, JIEC reassessed the number of firms in the zone and restructured its database, which marginally reduced the occupancy figures. As of 2006, there were 347 firms operating in the zone, all of which were SMEs. Given the expansion of some firms, the relocation of others and new entrants, the zone again stands at full capacity. Expansion plans are thus under way aimed at increasing the specialization of industrial clusters in the zone and accommodating additional firms.

At the Al Hassan Industrial Estate, the number of firms with less than 250 employees fluctuated between 34 and 40 firms between 2000 and 2005, when it stood at 36 SMEs. However, there has been a significant increase in the number of large firms establishing themselves in the estate, increasing from 29 firms in 2000 to 54 in 2005, which is largely attributable to the estate receiving QIZ designation in 1999. These large firms have been concentrated in the garment industry, with the exception of a large leather goods production plant that employed 1,890 workers but closed down in 2001. Accordingly, of the 90 firms operating out of the Al Hassan Industrial Estate in 2005, 40 per cent were SMEs.

It is interesting to note that while the Al Tajamout Industrial City is characterized as a qualified industrial zone catering to large industries, the zone has also witnessed a growth in the number of SMEs, which increased from 8 in 2000 to 33 in 2006. Similar growth was also observed among large QIZ establishments during this period, as they increased in number from 2 in 2000 to 41 by 2006. SMEs thus represent 45 per cent of firms at the privately operated Al Tajamout Industrial City.

The general growth in the number of SMEs seeking to establish themselves in public and private industrial zones is thus an indicator that industrial zones remain attractive to Jordanian SMEs, even if they do not benefit from QIZ status. While not quantifiable, this increasing trend also exposes the perception in the SME community that locating operations in an industrial zone can enhance enterprise competitiveness.

(ii) *Production costs*

Public and private industrial estates provide incentives, including infrastructure and services, to attract manufacturing industries to open or relocate within their zones. If appropriately targeted, these incentives in turn reduce production costs for the firm and can thus enhance SME competitiveness. Differences between incentive schemes can therefore have important implications for SMEs in terms of their operating costs and profitability.

Public industrial estates operated by the Jordan Industrial Estates Corporation are able to use public policy instruments to attract investment and firms. These primarily include tax breaks, which are not

⁷⁹ Government of Jordan, Department of Statistics, 2005.

⁸⁰ JIEC Annual Reports.

available to tenants located in private industrial zones. In general, JIEC provides a two-year income and social services tax holiday to tenants of publicly-owned estates. However, in view of development goals to extend economic growth to remote regions of Jordan, JIEC offers 20-year exemptions from income and social services taxes, as well as reduced land rental and purchase prices at the Ma'an Industrial Estate,⁸¹ which is located in the south of Jordan and whose construction was financed with support from the Government of China. JIEC also seeks to enforce the ISO 9001 quality assurance system.

JIEC also actively encourages the relocation of industrial projects to industrial estates and is building new industrial estates with enhanced business development services to attract new companies. These new services include: built-up facilities for start-ups to encourage SME development; expansion of existing wastewater treatment facilities; establishment of an innovation centre at Al Hassan Industrial Estate to host specialized incubators focused on information technologies; and sector specialization plans being incorporated into the design of the Al Muwaqqar Industrial Estate, which would effectively serve as an extension of the saturated Abdullah II Ibn Hussein Industrial Estate. Tenants may also apply to the Jordan Investment Board for industry investment incentives and special financing arrangements.

Private industrial estates, by contrast, primarily use infrastructure and business-related services as incentives to attract investors. Cost-benefit calculations, however, are used to determine what specialized infrastructure might be provided to attract certain clients. Some services are not provided until an occupant is situated in the industrial zone and requires that service. Tables 9 and 10 below detail the various incentives offered in a typical publicly and privately managed industrial zone respectively.

As can be seen from both tables, JIEC managed zones offer more financial incentives and business services associated with streamlining the time and cost of complying with government procedures. Incentives offered by the private QIZ, however, are much more targeted to larger firms, particularly those that are interested in recruiting labour from abroad.

TABLE 9. INCENTIVES OFFERED BY THE JORDAN INDUSTRIAL ESTATES CORPORATION
(PUBLIC INDUSTRIAL ZONE)

Incentives		
Infrastructure	Services	Tax breaks
<ul style="list-style-type: none"> • Availability of cost-effective land and factory buildings • Reasonable cost of utilities, including power and water • Access to a network of roads and infrastructure, (telecommunications, water supply, sewage, drainage, landscaping and power network) • Availability of wastewater treatment plants 	<ul style="list-style-type: none"> • Availability of a range of ancillary services: <ul style="list-style-type: none"> ○ Customs and vocational training centres ○ Free zones ○ Labour offices, civil defence centre, police stations, branches for Chambers of Industry ○ Commercial banks ○ Gas, maintenance and fire stations ○ Clearance offices ○ Clinics • Modern one-stop service shop • Public advocacy support provided by management • After-sale services 	<ul style="list-style-type: none"> • Two years exemption on income and social services taxes • Total exemptions from building and land taxes • Exemptions or reduction on most municipalities' fees • All exemptions offered by Jordan Investment Board

Source: JIEC Annual Publication.

⁸¹ *Jordan Times*, "Jordan: Majali highlights incentives at Maan Qualifying Industrial Zone", 24 May 2005.

TABLE 10. INCENTIVES OFFERED BY AL TAJAMOUAT INDUSTRIAL CITY
(PRIVATE INDUSTRIAL ZONE)

Incentives	
Infrastructure	Services
<ul style="list-style-type: none"> • Complete roads and sidewalks • Access to water, sewage, power, electricity and telephone networks 	<ul style="list-style-type: none"> • Fully furnished dormitories to house 7,000 people • Catering services • Clinic and health care services • Full-time staff of 124 security guards • Maintenance services • Removal of liquid and solid waste • Waterhouse and storage facilities • Water distribution network • Housekeeping services for dormitory and common areas throughout the zone • Local labour recruiting services, in cooperation with the Ministry of Labour • Freight forwarders and clearing agents • Money transfers and financial services • Machinery supply and maintenance services • Garment washing facilities • Office of the Ministry of Labour • Office of the Custom Department • Police station

Source: Al Tajamouat Industrial City Publication.

In terms of labour, while the Government and retail sectors are the largest employers of Jordanian nationals, the manufacturing sector comes third, employing 12 per cent of Jordanians over 15 years of age in 2003.⁸² However, despite national employment in manufacturing, the statistics from the Ministry of Labour reveal that almost 40 per cent of workers in QIZ factories are foreigners from China, India and Pakistan.⁸³ These foreign workers are housed at QIZ estates by their employers and work exclusively in large garment-making factories. Accordingly, while firms based in both public and private zones provide employment opportunities for the Jordanian workforce, private industrial zones tend to provide more cost-effective support for larger firms seeking to recruit a majority of their labour force from abroad. While such support may enhance the competitiveness of the firm, it does not necessarily support the strengthening of the SME sector in those zones or create significant employment opportunities for Jordanian nationals within the framework of Jordan's larger development objectives.

(iii) *Exports performance and product diversification*

Changes in export levels are another indicator that can be used to examine the effectiveness of industrial zones in Jordan to enhance SME competitiveness. Unfortunately, however, the findings have been mixed, with some industrial zones exhibiting a growth in SME exports while others have struggled to keep afloat.

For example, SME exports from the Abdullah II Ibn Hussein industrial estate slightly dipped in the year 2000, but have since been increasing and enjoyed significant export growth in 2004 and 2005, although not as much as national export performance. However, export growth from the zone failed to match that of the total Jordanian exports in 2006 which soared to an exceptional figure of over 3,000 JD million (\$4.4

⁸² "Percent Distribution of Employed Jordanians Age +15 Years by Economic Activity, 2003", Department of Statistics, Government of Jordan, as quoted in Ministry of Environment, *Environmental Profile of Jordan*, March 2006.

⁸³ Oula Al Farawati, "Industrial zones spark debate in the region", *The Daily Star*, 11 December 2003.

billion), as shown in figure VIII. The exports from the industrial estate have also been diversified in nature, although concentrated mostly in engineering-related products (metal, engineering, electronics, and manufacturing tools), as well as the food, packing and packaging industries, as shown in figure IX. This indicates an increasing export competitiveness of industrial SMEs working in the estate in a range of sectors.

Figure VIII. Total exports of Jordan and of the Abdullah II Ibn Hussein Industrial Estate (JD million)

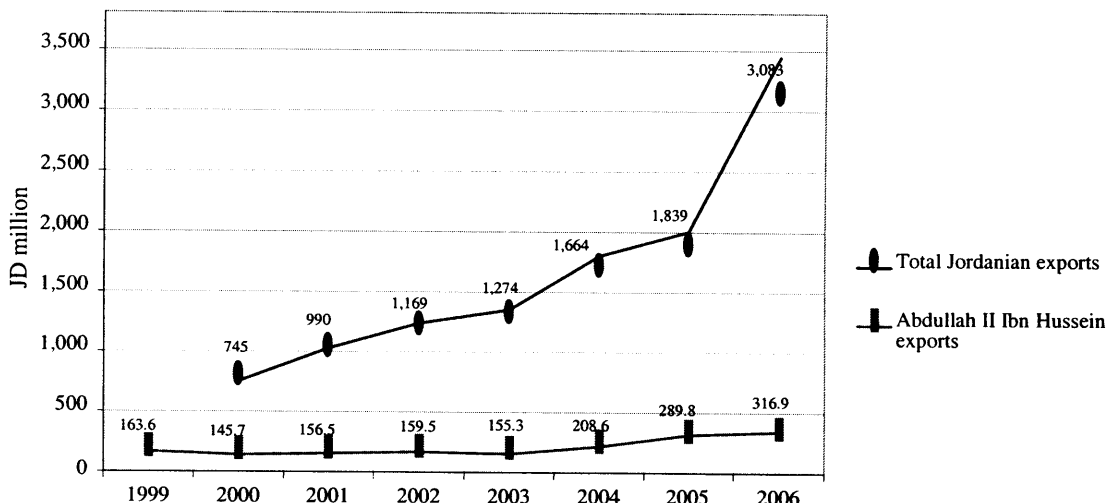
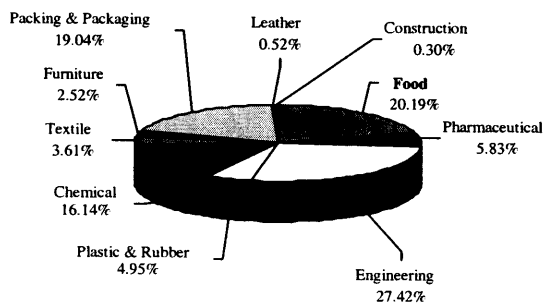


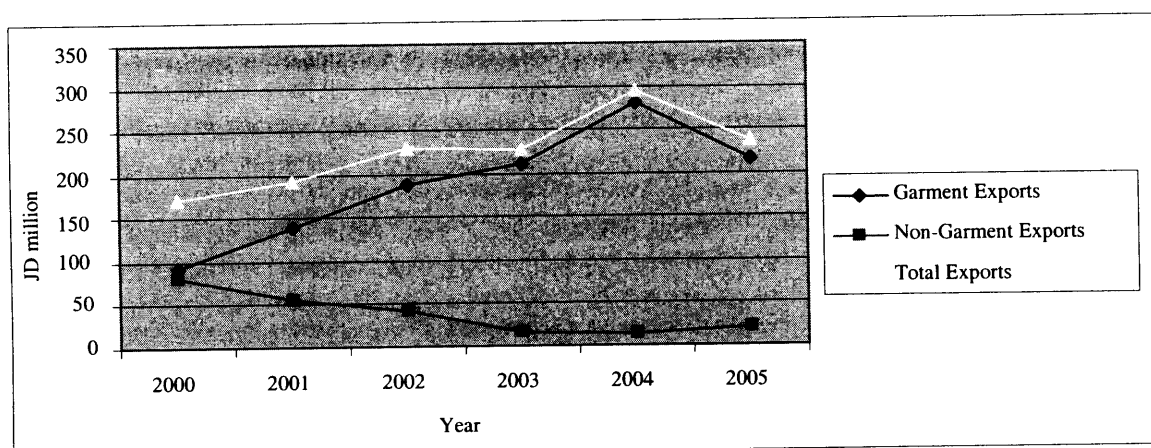
Figure IX. Percentage share of industrial sectors in total exports of the Abdullah II Ibn Hussein Industrial Estate (2005)



Source: Figures from annual reports of the Jordanian Industrial Estates Corporation.

However, non-garment exports from SMEs based at Al Hassan Industrial Estate have been suffering, recording only moderate improvements in export performance in 2005, as can be seen in figure X. In 2005, these exports were mostly sourced from engineering-related industries (4.5 per cent) and the pharmaceuticals industry (4.2 per cent), although some plastics, rubber and chemicals were also exported from the zone. It is noteworthy to point out, however, that there has been a gradual recovery in non-garment exports from the zone in recent years, despite the significant dip in garment exports from the zone between 2004 and 2005.

Figure X. Al Hassan Industrial Estate exports
(JD million)



Source: Jordan Department of Statistics; JIEC annual reports for 2001-2006.

In addition, the 13 active industrial zones in Jordan generated \$1.7 billion in total exports in 2006, which represents 39 per cent of total Jordanian exports. However, most of this total was exported from qualified industrial zones, whose export revenues significantly increased from \$2.44 million in 1999 to nearly \$1.1 billion in 2006 and whose output is largely oriented towards the garment sector. However, exports from QIZ apparel producers are only sold to the United States market. There has therefore been an increasing dependence on the United States market for sustaining the export performance in recent years at the national level and in industrial zones.

(b) *Ability of industrial zones to improve environmental performance*

Jordan's National Environment Information Strategy identifies the industrial zones in East Amman, Ruseifa, Awajan, Zarqa and Sahab as major sources of air pollution in Jordan, mainly CL_2 , F_2 , Pb, SO_2 , and CO.⁸⁴ In terms of sewerage network coverage, 80 per cent of households in Greater Amman are connected to proper wastewater infrastructure in comparison with only 4.5 per cent in other urban areas, resulting in a national average of 25 per cent of households (about 50 per cent of the population).⁸⁵ Most sewage systems where industrial estates are expected to be located in the future are already running at overcapacity. While expanding to accommodate increased intra-regional trade, transportation networks for connecting industrial zones to ports of entry and export require further expansion. Traffic congestion caused by trucks moving through industrial zones and limited water availability are also frequent complaints of industrialists operating in public industrial zones, according to JIEC reports.⁸⁶

Nevertheless, institutions and infrastructure for monitoring and enforcement of environmental regulations are improving in Jordan. The Environment Protection Law of 2006 and associated by-laws now require environmental impact assessments to be conducted prior to the establishment of new firms or potentially polluting activities. There are also 21 working landfills now operating in compliance with

⁸⁴ Government of Jordan, National Information Centre, *Proposed National Environmental Information Strategy*, 1999, p. 9. Available at: <http://www.sdnj.gov.jo/pdf/EIS%20Final.pdf>.

⁸⁵ Government of Jordan, *Jordan Agenda 21*, chapter 2, p. 65 available at: <http://www.environment.gov.jo/agenda21/english/chapter02.pdf>.

⁸⁶ JIEC consultation with industrialists as per its website, www.jiec.com.

environmental standards in Jordan. A new hazardous waste landfill is also coming into operation outside Amman, which should improve the collection, storage and disposal of hazardous waste throughout the country. Indicators for assessing the ability of industrial zones and associated institutions to ensure sound environmental performance of firms in industrial zones are detailed below.

(i) *Availability of environmental services in industrial zones*

Given that environmental enforcement mechanisms to support the decisions of the Ministry of Environment were established recently in 2006, the provision of environmental services in industrial zones has been largely a response to the environmental measures and monitoring mechanism laid out by the developers and operators of industrial zones.

For public industrial zones run by JIEC, such as the Abdullah II Ibn Hussein and Al Hassan Industrial Estates, the Jordan Industrial Estates Corporation Law No. 59 for the Year 1985 and its Amendments state in section III, article (7) that the corporation is vested with the authority to take necessary measures to protect the environment against pollution caused by industries, including water and airborne pollution. Under the oversight of the Jordan Industrial Estate Corporation, industrial estates are thus established in accordance with the following environmental provisions:

- It should be far from the growth direction of residential areas;
- It should be in opposition to the wind direction heading for the residential areas;
- It should serve the local society both socially and economically;
- The estate location must not exist above a water basin or even next to one.

Public industrial zones also apply smart geometrical planning methods; allow adequate space for greenery and gardens; design adequate water supply and sewage systems and utilities to serve industrial plots and service centres; provide a network of channels to manage rainwater; and ensure that the built area is according to height specification and does not exceed 60 per cent of the total land area.

The Jordan Industrial Estate Corporation has also restructured its approach to environmental management in its industrial zones. Previously decentralized with independent environmental departments monitoring performance in each zone, JIEC established a centralized Directorate of Environment and Public Safety in November 2006. The office supervises the performance of the Environment Department, the Laboratories Department and the Water Processing Department in each zone and ensures consistency and clarity of their operating procedures. Departments at the zone level are responsible for conducting environmental impact assessments for all projects submitted for investment in their respective zone. The departments also manage, monitor and enforce standards as follows:

- Solid waste management is subcontracted to private providers by concluding hygiene, wastes discharge and agriculture agreements with specialized companies to serve the industrial estates. JIEC in turn continuously supervises the performance of these companies and provides different sized containers for disposing of different types of solid waste, which are subsequently moved by the contracted companies to officially licensed landfills;
- Hazardous waste is stored temporarily and disposed of in coordination with the Ministry of Environment;
- Liquid waste is handled through wastewater infrastructure, as detailed below;
- Airborne emissions, including dust and smoke, are monitored by JIEC;
- Afforestation and landscaping are provided.

The private operator of Al Tajamouat Industrial City established a Control Department that oversees environmental issues at the estate. Environmental services offered by Al Tajamouat cover water supply, domestic wastewater collection and disposal, solid waste collection and disposal, and landscaping.

(ii) *Access to wastewater infrastructure*

The effective management of wastewater requires differentiation between industrial pollutants and domestic grey water. Wastewater treatment is important as water resources are scarce in Jordan, and thus an integrated water resource management system is required that incorporates water demand and supply managements tools. This environmental service is particularly important in industrial zones housing the garment industry, which releases blue water owing to the treatment of textiles and their laundering.

The Jordan Industrial Estates Corporation operates a wastewater treatment facility in all its industrial estates. It further seeks to recycle processed water for certain agricultural purposes. JIEC also houses specialized laboratories for microbial, physical, and chemical analyses at zones to monitor industrial effluent as well as analyse samples at the request of an investor. Purification systems at water treatment stations also undergo regular testing.

However, private industrial estates do not invest in wastewater treatment facilities until one is warranted by a new occupant. For instance, Al Tajamouat Industrial City planned to have a wastewater treatment facility. However, since the company producing high levels of industrial effluent has not been financially profitable in recently years, the JD 2 million investment for the treatment facility has been postponed. Currently, five garment factories in the estate operate garment-washing facilities and require industrial effluent controls. Rather than treatment, these factories are responsible for discharging their liquid waste into designated collection pits. They collectively generate about 354 m³ of wastewater, with discharges from individual firms ranging from 4 m³ to 150 m³.⁸⁷ The Control Department monitors the discharge.

With regard to domestic wastewater, the Abdullah Ibn Hussein and Al Hassan Industrial Estates are public enterprises and are connected to the central sewage system provided by the local municipality. Al Tajamouat Industrial City is located outside the public sewerage network and thus operates a wastewater collection system that consists of gravity sewer lines that terminate at two collection pits. The disposal of the wastewater collected in the pits is subcontracted to a specialized firm and transported via tankers to the Ain Ghazal wastewater treatment plant, which operates at overcapacity. The Water Authority of Jordan is planning to construct a central wastewater treatment plant to serve the southern suburbs of Amman. Once this is realized, Al Tajamouat intends to connect to the public sewage line. Effective planning and monitoring must thus be undertaken at that point to ensure that wastewater loads from the estate to not result in a mix of domestic and industrial discharges in the absence of a local treatment facility.

(iii) *Availability of noise control systems*

The Jordan Industrial Estates Corporation does not currently operate a noise control system in any of the industrial estates that it manages. However, JIEC is a member of a Committee on Industrial Dangers, which examines the issue of noise pollution by industry should a problem become serious. Noise pollution mitigation is not part of the services offered at Al Tajamouat Industrial City.

(iv) *Costs of access to environmental services*

Since JIEC operates wastewater treatment facilities at its estates, private firms are not responsible for building their own treatment facilities unless their industrial effluent is judged unsuitable for the central facility. Should that be the case, the firm is responsible for building its own treatment facility. Otherwise,

⁸⁷ Based on an interview with Mr. Firas Sweis, Head of Control Department, Al Tajamouat Industrial City, Jordan, 2007.

JIEC charges a disposal fee of JD 0.5 per m³ of liquid waste; no fee is charge for solid waste disposal except for large quantities. Construction on the new Al Tafileh Industrial Estate being established by JIEC began in August 2007 and includes the installation of a \$10 million wastewater treatment facility. The estate is expected to serve up to 50 SMEs and generate income and employment in one of Jordan's poorest regions.⁸⁸

In the Abdullah II Ibn Hussein Industrial Estate, where all firms are SMEs, the Al Ghazal Vegetarian Oil factory installed a wastewater treatment plant in 1995 that cost them about \$50,000 at that time. According to the company's Quality Department, the firm consistently applies all environmental rules related to wastewater management. The plant also maintains a solid waste recycling programme that collects and compresses aluminium tins, cans and plastic bags used during their production process for resale to other companies. Gulf Food, located in the same industrial estate, planned to build an industrial wastewater treatment facility in 2006; however, it reported that the investment did not take place owing to cost considerations (around JD 28,000 or about \$40,000) and the increasingly tight budgets being experienced by the firm. Current space limitations at the zone also prevent the firm from engaging in expansion plans that would otherwise allow them to increase their output and require the investment in a dedicated wastewater treatment unit. Both firms confirmed that JIEC conducts regular monitoring and inspection of their facilities to ensure compliance with environmental standards.

At Al Tajamout Industrial City, the zone operator and private investor agree to a service contract that assigns the estate the responsibility for the disposal of domestic wastewater and solid waste for a certain fee. The fee for this service varies according to factory size. The perception among firms is that the service fees are minimal.

(v) *State of environmental monitoring and enforcement: the comparative risk of being subject to environmental inspection and penalty*

Among the first acts undertaken by the Ministry of Environment after the adoption of the Environment Protection Law in 2006 was to establish an environmental police force called the Environmental Rangers. The Rangers are responsible for enforcing environmental laws and regulations, protecting and preserving environmental resources, and enhancing environmental awareness as a means to achieve sustainable development. Launched in September 2006, 11 branches of the environmental police force were established by July 2007, with plans to extend activities to cover the entire Kingdom by end-2008.

The budget of the environmental police force is allocated through the Ministry of Environment, and administrative management is handled by the Public Security Directorate at the Ministry of Interior. The Rangers technically report to a Higher Committee headed by the Minister of Environment. The Minister has the authority to issue decisions to close industrial establishments that operate in violation of environmental regulations, with enforcement of these decisions carried out by the Environmental Rangers. The Directorate of Inspection and Enforcement at the Ministry of Environment assists the Minister and helps to coordinate the work of the Environmental Rangers.

According to the Environment Protection Law of 2006, once a violation is issued, a factory owner is granted a grace period during which time the factory must come into compliance with environmental regulations. In case the violation is not rectified by the deadline, the case is transferred to a court where the Ministry of Environment has the right to initiate closure of the factory and impose penalties. Penalties might entail imprisonment of the violator for a period of not less than a week and not more than 30 days, or a financial penalty of not less than JD 100 and not more than JD 10,000, along with the obligation that the violator must to come into compliance and pay not less than JD 50 and not more than JD 100 for every day of delay from removing the violation during the specified time.

⁸⁸ Oxford Business Group, "Jordan: Investing in Industrial Estates", 26 July 2007.

The Ministry of Environment reports that during the first eight months of 2007, a total of 4,606 environmental violations were recorded, 592 of which involved factories and quarries and 386 related to water and wastewater violations.⁸⁹ In addition, 297 environmental violations were issued during the last three months of 2006, after the police force came into operation.⁹⁰ In the Municipality of Amman, the Environmental Rangers issued 555 warnings, 565 violations and closed 138 enterprises from January to August 2007. This demonstrates that environmental enforcement mechanisms are being strengthened in Amman and throughout the Kingdom based on close cooperation between the relevant authorities.

Environmental violations and orders for closure can be issued to companies located inside and outside industrial zones. However, given the recent adoption of the environmental law and its implementing mechanisms, it is important to consider how industrial zones were ensuring environmental compliance prior to the 2006 environmental law. At the Abdullah II Ibn Hussein and Al Hassan industrial estates, the Jordan Industrial Estates Corporation's Directorate of Environment and Public Safety monitors environmental performance and issues written warnings to industrial establishments that are in violation of environmental standards. In the event that a warning is not heeded by the establishment, an environmental violation is issued. Should the violation continue, JIEC would seek to help the firm to address the problem or take more punitive measures. However, since the establishment of the Environmental Rangers, JIEC now calls upon the Ministry of Environment to exercise legal action against violating firms in accordance with the new environment law.

During the period of 2000 to 2007, the number of factories issued violations in the Abdullah II Ibn Hussein Industrial Estate fluctuated from 17 in 2000, to 89 in 2004, and then down to 42 in 2006, with several violations issued to the same factory, as seen by the number of violations issued (see figure XI). The number of violations issued in the Al Hassan Industrial Estate during the same period is illustrated in figure XII and denotes a similar trend, although the number of environmental violations issued in the zone peaked a bit later in 2003.

Figure XI. Environmental violations at the Abdullah II Ibn Hussein Industrial Estate

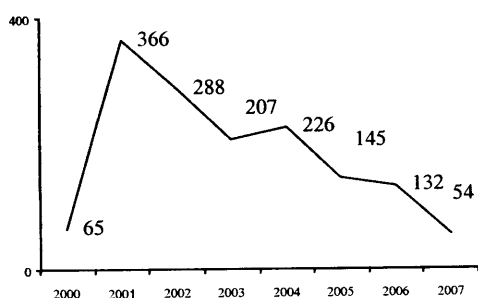
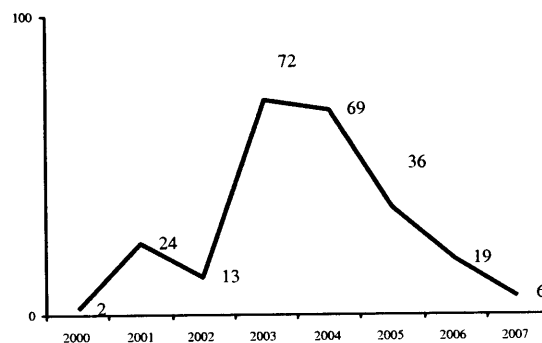


Figure XII. Environmental violations at the Al Hassan Industrial Estate



Source: JIEC Directorate of Environment and Public Safety; data for 2007 are based on the latest figures received by the Directorate by mid-2007.

Despite the fact that the Abdullah II Ibn Hussein Industrial Estate had 347 enterprises in 2006, while the Al Hassan Industrial Estate had only about 90, similar trends can be generally observed regarding the

⁸⁹ Government of Jordan, Ministry of Environment, Report of the review and performance evaluation workshop for the period 1/1/2007 – 31/7/2007 (in Arabic), Amman, Jordan, 2007, p. 13.

⁹⁰ *Al-Ghad*, "Ministry of Environment establishes instructions to enforce Environmental Inspection" (in Arabic), 25 July 2007, available at: <http://www.alghad.jo/?news=189341>.

issuance of violations. There was a peak in the number of environmental violations issued, involving a large number of firms in the industrial zones, and then performance improved. While the cause for slight fluctuations in environmental performance at the Abdullah II Ibn Hussein Industrial Estate is unclear, it is evident that environmental performance in the industrial zones improved following a clear demonstration of environmental enforcement by JIEC. It is also evident that this improvement in environmental performance began in the early years of 2000, which was well before the adoption and enforcement of environmental laws in Jordan and prior to the establishment of the Environmental Rangers. This is important to recognize since SMEs account for all enterprises in the Abdullah II Ibn Hussein Industrial Estate and for about 40 per cent of firms in the Al Hassan Industrial Estate. Environmental monitoring within the industrial zones has thus not been a disincentive to SMEs seeking to establish themselves in these estates and to continue to operate there. Indeed, Abdullah II Ibn Hussein has been operating at full capacity for several years, with plans under way to expand its surface area to accommodate more SMEs.

Furthermore, when considering the ratio of environmental violations to the number of firms and the recent establishment of an environmental police force, the monitoring of environmental performance in JIEC industrial zones is more rigorous than environmental monitoring and inspection conducted by the Ministry of Environment and Environmental Rangers to date. Of the 21,000 industrial establishments in Jordan in 2006, only 3 per cent operate in public industrial estates. SMEs in industrial zones have thus been subject to more regular and rigorous environmental monitoring by JIEC than by national authorities to date, owing in part to the developing legal and institutional framework for environmental management in Jordan. Nevertheless, this has not dissuaded SMEs from operating in public industrial estates and has not adversely affected their competitiveness.

At privately managed Al Tajamouat Industrial City, environmental monitoring is conducted by the Control Department. Environmental warnings and penalties are applied as and when applicable in accordance with the environmental law and supporting regulations issued in 2006. The Ministry of Environment is called upon in the case of a persistent violation, and a number of factories were recently closed at the estate because of continued non-compliance with environmental standards. Information regarding environmental violations prior to 2006 is not available. From discussions with managers at the privately managed estate, however, it appears that environmental monitoring and compliance improved following adoption of the Environment Protection Law of 2006.

(vi) *Future environmental plans*

Building the capacity of institutions and infrastructure for monitoring and improving environmental performance of SMEs and large firms in industrial zones is an evolving process. However, plans are in the pipeline for improving compliance with national environmental standards. For example, the future expansion plans of the Jordan Industrial Estates Corporation will examine environmental consequences and their development plans more rigorously in view of new environmental impact assessment requirements approved by the Council of Ministers and issued by the Ministry of Environment. There are also plans to expand the capacity of the wastewater treatment facility at the Al Hassan Industrial Estate to accommodate greater levels of production and new firms. The Directorate of Environment and Public Safety at JIEC is also preparing an Environmental Violations Manual to better inform current and interested occupants about their environmental responsibilities when operating in one of their public industrial zones.

At Al Tajamouat Industrial City, a new committee was formed to follow up on environmental issues and to take immediate action when necessary against violators, as per by-laws issued by the Ministry of Environment. The Control Department at the industrial estate oversees the work of the committee.

The Ministry of Environment has in turn embarked on several initiatives to improve environmental protection across sectors. These include issuing the Ministry's Environmental Strategy Implementation Plan for 2007-2009, strengthening environmental policy frameworks, conducting regular reviews of

environmental monitoring and enforcement actions, and creating an environment fund with donor support to facilitate access to financial resources needed to support environmental investments. These mutually-enforcing efforts will assist Jordan in achieving the targets laid out in the National Agenda with respect to increasing investment and enhancing environmental protection with a view to sustainable development.

(c) *Summary of findings*

Prior to the year 2000, industrial zones were nearly entirely comprised of SMEs and were publicly operated by JIEC. With the advent of qualified industrial zones and increased awareness that Jordan could serve as a regional manufacturing and logistics hub between the Gulf, Iraq and the Levant, national policies shifted from SME development to investment promotion, as articulated in the National Agenda. While employment and export indicators have flourished, growth from industrial zones (particularly QIZs) has been skewed towards a narrow band of sectors concentrated in garment production, which is largely supported by expatriate labour and caters to the United States marketplace.

Accordingly, one might ask whether these investment and export-oriented development policies guiding industrial zone policies have been biased against SMEs or have adversely impacted their competitiveness relative to larger firms. The findings are mixed. SMEs continue to find that industrial zones provide a favourable environment for growth and have maximized occupancy levels in Jordan's oldest industrial estate despite regular and relatively rigorous environmental monitoring conducted by JIEC. SMEs also continue to enter and operate in private industrial zones catering to QIZs, although incentives and business support services favour larger manufacturers. However, the export performance of SMEs has not been as impressive as that of larger firms. While export performance in industrial zones is generally improving, it is not growing to the same extent as the national average, and the export performance of large firms from QIZs remains more impressive than that of SMEs. It is interesting to note that export performance figures also show that SMEs in public industrial zones have been able to achieve greater export growth than their SME partners in QIZs, which are largely oriented towards serving larger firms. As such, more resources might be directed towards targeting assistance to SMEs in industrial zones by providing better access to the services, infrastructure and human resources needed to enhance SME competitiveness and performance.

The number of new industrial zones to be established in Jordan in the coming years and their location also exposes the Government of Jordan's continued commitment to using industrial zones as a means to foster decentralized socio-economic growth in line with development goals, despite an investment-oriented policy framework. The recent establishment of industrial estates in Ma'an and Al Tafileh City, Jordan's main poverty pockets, demonstrates that public policies continue to view industrial zones as a means to achieve socio-economic objectives derived from SME development and competitiveness, although such initiatives entail the achievement of objectives that often differ from those that seek to meet investment targets, expand exports or attract large-scale industries.

The adoption of the Environment Protection Law No. 52 of 2006 and associated enforcement mechanisms also exposes the Government's commitment to making industrial development sustainable in Jordan. However, the assessment reveals that environmental monitoring and enforcement has been more effectively managed by the Jordan Industrial Estates Corporation, the public industrial estate authority, rather than the Ministry of Environment given its recent establishment. Publicly managed industrial estates also seem to monitor environmental performance more rigorously than privately managed industrial estates. The findings also indicate that this situation is expected to remain largely the same until the human and technical capacity of the Department of Inspection and Enforcement and the Environmental Rangers increase so as to be able to monitor effectively and enforce environmental regulations throughout the Kingdom. However, the more stringent environmental monitoring arrangements in public industrial estates compared with environmental monitoring and enforcement outside industrial zones has not dissuaded SMEs from establishing themselves in industrial estates and from continuing to operate in these zones. Environmental monitoring and enforcement has thus not been detrimental to SME performance or their competitiveness.

5. *Corrective measures recommended*

Industrial policy related to the development of industrial zones in the National Agenda of Jordan is positioned within the framework of investment promotion. While industrial zones do provide advantages related to economies of scale and can attract special services and provisions for facilitating production and export, the SME dimension of Jordan's industrial policies should be reinforced. The socio-economic and environmental targets that Jordan seeks to achieve for the benefit of its citizens are dependent upon enhancing the competitiveness of SMEs and creating employment opportunities for Jordanian nationals. Performance targets currently establish goals associated with SME development, but should do so with a view towards reducing income disparity and improving employment of Jordanian nationals. Industrial zone policies and incentives could also be better directed towards enhancing SME manufacturing and competitiveness, which are needed if the contribution of SMEs to national GDP and employment is to improve.

With regard to environmental performance, the Ministry of Environment's plan to extend its monitoring and inspection coverage to enclose more industrial establishments is a move in the right direction. However, in expanding Ministry capacity, national regulators and the environmental police should work in partnership with public and private operators of industrial estates, which are closely monitoring firms within their zones and that are partially responsible for providing the environmental services needed to comply with national environmental standards. As such, strengthening environmental performance of industrial zones—including that of SMEs in these zones—should be a cooperative effort that should not only involve national regulators, but also public and private operators that can enhance environmental awareness and performance of SMEs at the firm levels.

D. POLICY LESSONS LEARNED

Regional experience in developing and establishing industrial zones in the ESCWA region reveals some important points that should be taken into consideration by decision makers seeking to promote industrial policy objectives through industrial zone development. First, it is important to clarify the development objectives of national industrial policy and ensure whether industrial zones are being promoted and managed in a way that is conducive to achieving these development goals. Positioning industrial zones within policy frameworks targeting investment goals and export promotion may facilitate achievement of those ends. However, those goals may marginalize SME development and competitiveness, which are most often the source of employment and income generation for nationals, if associated support policies are not put into place to assist the SME sector.

Secondly, since industrial estates are more contained geographically, the provision of environmental services and institutions responsible for environmental monitoring can result in better environmental performance than what might be able to be achieved outside of industrial zones. Hence, industrial zones can be more effective in improving SME environmental performance, while being consistent with policy goals seeking to enhance SME competitiveness. Environmental considerations should thus be incorporated into industrial zoning policies and planning from the onset, with a view to providing the environmental services needed by specific SME manufacturing sectors. This includes site identification, investments in environmental infrastructure and the conclusion of appropriate contractual agreements for delivering such services. These areas also can provide new opportunities for SMEs in the areas of environmental goods and services, which can further support the sustainable development of the SME sector in the region.

IV. CONCLUSION

The industrial policies reviewed in this study examine government interventions seeking to overcome information externalities that constrain competitiveness and access to foreign markets, as well as policy measures that seek to create an enabling environment for industrial development through the establishment of industrial zones. The implications of these industrial policies were assessed with a view to determining their impact on SME competitiveness and their ability to achieve national policy goals associated with fostering the development of SMEs. The case-studies on these two types of industrial policies also exposed different approaches to conducting impact assessments of industrial policies.

With regard to information externalities, policy makers and private sector stakeholders realize that access to information at a fair cost and in a transparent system is a key for success. Unfortunately, the culture of information remains, to a large extent, in need of enhancement in most developing countries, such as Lebanon, where the number of users of information technologies remains low and Internet connectivity is slow. These constraints thus impede access to information on standards, despite the increasing number of Internet websites being posted that are dedicated to facilitating access to this type of information.

Standards can motivate manufacturers to engage in more diversified and sophisticated product ranges. Industrial norms can encourage quality improvements that can have secondary benefits of improved productivity and competitiveness. Policies and programmes that encourage the development of industrial standards and certification schemes can thus be tools for informing SMEs about new industrial trends and targets, as well as a means of encouraging firms to engage in innovation, adaptation and technology transfer. However, markets are becoming increasingly sophisticated in terms of their preferences, and governments are constantly upgrading their quality infrastructure. This means that producers and exporters must be on the constant look-out for new standards and regulatory requirements in order to keep up with industrial trends. This changing environment requires dynamic and up-to-date information systems to be put into place to supply the needed information and avoid exporters being left behind. Public policies implemented in partnership with the private sector can thus overcome market failures and costs associated with accessing information, which are particularly high for SMEs.

There are also demand-side limitations. If entrepreneurs do not foresee a return on engaging in new product design and compliance with more rigorous standards, they are less likely to take the risks associated with discovery, adaptation, or the development of new products. This in turn adversely affects SME competitiveness. Interest in accessing information on new or emerging standards to foster new product development may be partially limited owing to the absence of intellectual property rights or mechanisms to protect proprietary information about products able to comply with new standards. Lack of financing to invest and upgrade production facilities in order to comply with more stringent standards presents another important challenge. Technical capacity and scale economies also pose problems, particularly for small firms. As such, standards do not foster innovation to create new product lines, as is often the case in moderate to high-technology industries, but instead establish barriers to trade for smaller producers and those dependent upon more traditional production processes. Hence, there is a role for industrial policy to address these market failures and other structural barriers hindering the ability of firms to access and adhere to industrial standards.

As elaborated in the review of industrial zones, mixed policy messages can result in unintended impacts. For instance, in Jordan, indicators of achievement are more linked to investment values, rather than development goals that would seek to increase employment and income for local residents by encouraging SME competitiveness in the country although the number of SMEs in Jordanian industrial zones has grown. Furthermore, while the perception exists that qualified industrial zones in Jordan only cater to large industries, and primarily to the textile sector, the assessment has found that SMEs represent nearly half of all firms in selected qualified industrial zones and dominate manufacturing in other industrial zones. The demand for additional space in public industrial zones that have achieved full occupancy also indicates that SMEs believe that locating in industrial zones can enhance their competitiveness. However, industrial

estates seem to provide incentives and services that still favour larger firms. Public industrial zones seem better at orienting their services to the needs of the SME sector than privately managed industrial estates.

In terms of environmental compliance, the study concludes that industrial estates have been better positioned to assess environmental performance of industries within their zones, given available environmental infrastructure services and human resources. This by no means implies that the industrial industries located inside the estates are less polluting than those located outside of the estates. However, monitoring and assessing environmental performance is more rigorous in publicly operated industrial estates than currently is the case outside of industrial zones. This provides an opportunity for government industrial zone operators and regulators to work together to monitor and enhance the performance of SMEs in industrial zones, and supports the argument that environmental compliance does not adversely affect competitiveness.

In this study, impact assessment tools were elaborated and applied. As tools presented for improving the design and assessment of industrial policy interventions, particularly with regard to SMEs, it is hoped that the study highlights not only the importance of strengthening the process of ensuring consultation and coordination with stakeholders during industrial policy formulation, but also the importance of applying analytical processes to assess the impacts of an industrial policy chain from intervention to impact.

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