

Regulations Policies and of Abu Dhabi Emirate, United Arab Emirates



Regulations and Policies

of Abu Dhabi Emirate, United Arab Emirates





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- بشكل عام، تم إعداد الأوراق القطاعية الأصلية بشكل جديد قدم فيها مجموعة قيمة من المعلومات
- لم تصل مشاركة الشركاء والجهات المعنية إلى الحد المخطط له
- تم إعداد الأوراق القطاعية بدون دعم كافي من الهيئة أو الشركاء والجهات المعنية، وبالتالي، كان على مؤلف الورقة القطاعية تحمل عبء إعداد ورقة هذا القطاع في وقت زمني محدود نوعاً ما

- في بعض الحالات كانت البيانات المستخدمة قديمة نسبياً
 - لم يتم إضفاء الطابع المؤسسي على عملية جمع البيانات وتبادلها
- تهدف مراجعة المبادرة في إطار المرحلة الثانية إلى معالجة هذه الثغرات، فضلاً عن غيرها من الثغرات التي تم تحديدها كجزء من الأوراق الأصلية. ولأن تنفيذ مهمة فرق العمل تم كجزء من المرحلة الثانية من البرنامج، فقد تم تقديم الدعم على جميع المستويات لمساعدة موظفي هيئة البيئة - أبوظبي والشركاء والجهات المعنية على معالجة وتحديد الثغرات، وجمع البيانات وإجراء التحليلات وتطوير مخرجات البيانات المكانية، وبناء العلاقات مع الشركاء والجهات المعنية، وفي نهاية المطاف، إعداد الورقة القطاعية وتنقيحها.

- وتشكل الأوراق القطاعية مصدراً قيماً للمعلومات البيئية والاجتماعية والاقتصادية لأبوظبي وتم استخدامها لمراجعة وتنقيح تقرير حالة البيئة لإمارة أبوظبي فضلاً عن إعداد الأطلس البيئي لأبوظبي (النسختين المطبوعة والتفاعلية).

- ولمزيد من المعلومات حول المبادرة أو للوصول لنسخة الكترونية من الأوراق القطاعية، يرجى زيارة الموقع الإلكتروني في www.agedi.ae.

- البيانات
- الأدوات والأساليب
- التوعية
- بناء القدرات
- السياسة

الأوراق القطاعية

خلال السنوات الماضية قامت مختلف القطاعات المعنية بشؤون البيئة بتجميع كم من المعلومات المتنوعة بعدة صور تصف ما هو معروف عن البيئة في إمارة أبوظبي ودولة الإمارات العربية المتحدة والخليج العربي. خلال المرحلة الأولى لمبادرة أبوظبي العالمية للبيانات البيئية، تم تنظيم سلسلة من ورش العمل في عام ٢٠٠٥ لجمع المعنيين من هذه المنظمات، لتحديد القطاعات ذات الصلة، ووضع إطار العمل لكل ورقة قطاعية، ومعالجة الاحتياجات الاجتماعية والاقتصادية والبيئية الرئيسية في إطار كل القضايا المتعلقة في القطاع. من خلال هذا الورش، تم إعداد ثماني ورقات لقطاعية ونشرها:

- التلوث وإدارة النفايات
- القوانين والسياسات البيئية
- الموارد المائية
- الجغرافيا الطبيعية لإمارة أبوظبي
- البيئة البحرية والساحلية
- التراث التاريخي والأثري والثقافي
- التطور الاقتصادي والسكاني
- التعليم والتوعية البيئية

وتم إعداد قطاع إضافي كجزء من البرنامج الأصلي، ومع ذلك، وسيتم نشرها للمرة الأولى كجزء من المرحلة الثانية:

- البيئات البرية وموارد الأرض

و لأن الأوراق القطاعية هي مجموعة من أفضل المعارف المتاحة المتعلقة بالقطاعات البيئية والاجتماعية-الاقتصادية الرئيسية وتمثل أساس كافة المخرجات التي سيتم إصدارها لاحقاً كجزء من المرحلة الثانية للمبادرة، تم مراجعة الأوراق القطاعية الأصلية. وتم خلال ورشة العمل الدولية التي عقدت في عام ٢٠٠٧ تحديد ما يلي:

ما هي مبادرة أبوظبي العالمية للبيانات البيئية ؟

تم إطلاق مبادرة أبوظبي العالمية للبيانات البيئية في الثاني من سبتمبر ٢٠٠٢ خلال مؤتمر القمة العالمي للتنمية المستدامة الذي عقد في مدينة جوهانسبرغ بجنوب إفريقيا من قبل دولة الإمارات العربية المتحدة، كمبادرة شراكة من الصنف الثاني، لتكون أداة مبتكرة لتنفيذ الأحكام المتعلقة بالبيئة والواردة في الفصل ٤٠ من جدول أعمال القرن ٢١ وفي الأهداف الإنمائية للألفية.

وفي أوائل عام ٢٠٠٧ ، نظمت بأبوظبي ورشة عمل دولية لاستعراض الانجازات التي حققها برنامج المبادرة ووضع خطة إستراتيجية لمدة خمس سنوات. وعلى هذا النحو، بدأت المرحلة الثانية من المبادرة في عام ٢٠٠٨ بناء على ما تم انجازه في المرحلة الأولى، في حين تم معالجة الفجوات التي تم تحديدها من خلال المعلومات التي وفرتها الجهات المعنية خلال ورشة العمل.

ولا تزال الرؤيا التي تعمل وفقها المبادرة في المرحلة الثانية هي "وضع وتنفيذ نماذج عملية يمكن تكرارها وتكييفها من أجل إنشاء هيكل أساسي للبيانات البيئية المكانية عالية الجودة، للمساهمة في توفير القاعدة العلمية لاتخاذ القرارات". وسيتم في المرحلة الثانية استخدام الدروس المستفادة لتحقيق نجاح أفضل في تنفيذ المبادرة في مرحلته الثانية.

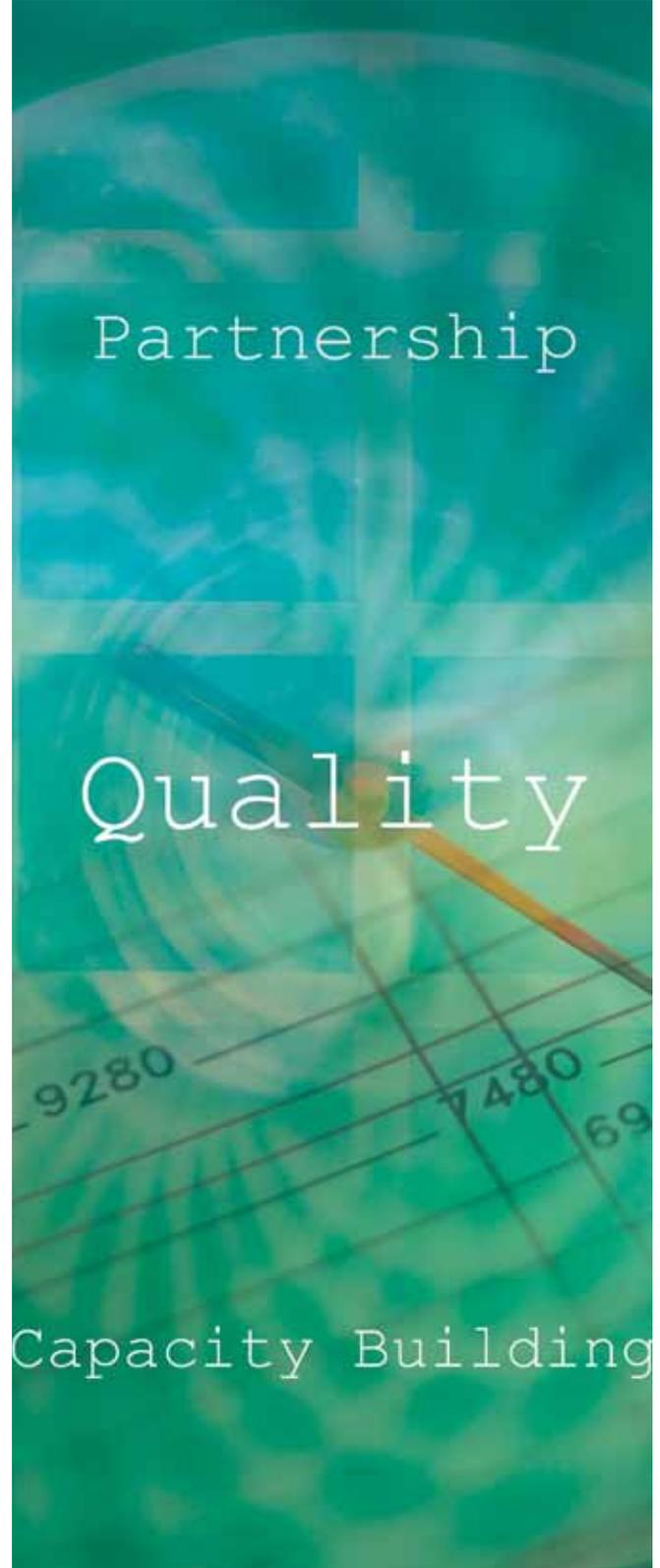
وسيركز البرنامج الحالي على وضع سلسلة من المخرجات التي تتناول قضايا محددة في حين يتم تحقيق نتائج مؤسسية معينة، بما في ذلك:

١. توفير بيانات بيئية أكثر جودة
٢. تحديد الثغرات في البيانات والأولويات
٣. تنسيق أقوى وشراكات لتبادل البيانات
٤. أساليب وأدوات أفضل للمعلومات
٥. ربط الإستراتيجية والتشغيل بشكل أفضل
٦. تحسين البنية التحتية البشرية والتقنية
٧. مؤسسة أقوى بشكل عام

والمخرجات التي تم تحديدها في إطار عملية التنمية هي أمور مترابطة ومتعاقبة مع المخرجات الأولية لدعم المعلومات والتفاهات التي تصب في الأنشطة اللاحقة. وهي تشمل ما يلي :

- مراجعة الأوراق القطاعية وقاعدة المعرفة
- مراجعة وتنقيح تقرير حالة البيئة
- الأطلس البيئي التفاعلي
- تعزيز بوابة البيانات المكانية
- تحسين الموقع الإلكتروني
- مؤشر الأداء الحكومي لابوظبي
- برامج وضع الإستراتيجية

ولضمان تحقيق نتائج إيجابية وتوفير الموارد التقنية الكافية للقيام بتطوير المخرجات، تم إنشاء مجموعة من فرق العمل بهدف تجميع الموارد لدعم فرق كل مخرج من المخرجات المبادرة. وتشمل هذه ما يلي :



What is AGEDI ?



The Abu Dhabi Global Environmental Data Initiative (AGEDI) program was fashioned around the United Nations World Summit for Sustainable Development (WSSD) Type II Partnership in 2002 as a tool to support the environmental provisions of Chapter 40 of Agenda 21 and the Millennium Development Goals.

In early 2007, an international workshop was conducted in Abu Dhabi to review the accomplishments of the AGEDI program and develop the next five year strategic plan. As such, AGEDI Phase II began in 2008 building off the accomplishments of the initial phase, while addressing gaps identified through stakeholder input during the workshop.

The vision of AGEDI Phase II remains to be a “replaceable, networked, adaptive and working model for the development and use of high quality spatial environmental data by all users within the Emirate of Abu Dhabi that will support sustainable decision and policy making.” Phase II will use lessons learned to better guide the successful implementation of AGEDI in its second phase.

The focus of the current program is to develop a series of interrelated products that address specific issues while achieving certain institutional outcomes, including:

1. Better current and quality environmental data
2. Identification of data gaps and priorities
3. Stronger coordination and data sharing partnerships
4. Better information methods and tools
5. Better links between strategy and operation
6. Improved human and technical infrastructure
7. Stronger organization overall

The specific products under development are interdependent and sequential, with early products yielding information and understandings that feed into subsequent activities. These include the following:

- Sector Paper Review and Knowledgebase
- SoE Review and Refinement
- Environmental Atlas
- Interactive Environmental Atlas
- Geospatial Portal Enhancement
- Website Refinement
- EPI for Abu Dhabi
- Programs Alignment Strategy

To ensure positive outcomes and adequate technical resources for carrying out the product development, a series of task forces were established as pooled resources to support each product team. These include:

- Data
- Tools and Methods
- Outreach
- Capacity Building
- Policy

Sector Papers

Over the years, different organizations compiled a variety of information in many forms that describe what is known about Abu Dhabi, the UAE and the Arabian Gulf Region. Through the initial AGEDI phase, a series of workshops were developed in 2005 to bring together stakeholders from all these organizations, identify the sectors that were relevant, design a framework for each Sector Paper, and address the key environmental and socioeconomic issues relevant under each sector. Through this effort, eight Sector Papers were completed and published:

- Waste Management and Pollution
- Environmental Policy and Regulation
- Water Resources
- Physical Geography
- Marine and Coastal Environment
- Paleontological and Archaeological Resources
- Population, Development and Economy
- Environmental Education and Awareness

One additional sector was scoped as part of the original program, however, will be published for its first time as part of AGEDI Phase II:

- Terrestrial Environment

Because the Sector Papers are a collection of the best available knowledge pertaining to key environmental and socioeconomic sectors and serve as the basis for all subsequent products to be developed as part of AGEDI Phase II, a review of the original Sector Papers was conducted. Already known through the international workshop held in 2007 was:

- Overall, the original papers were done well and provided a wealth of information
- Stakeholder participation did not reach the level originally intended

- Sector Papers were developed without much agency or stakeholder support, and therefore, became the burden of the Sector Paper authors under a fairly limited timeframe
- Data used was outdated in some cases
- Data collection and sharing did not get institutionalized

The review under AGEDI Phase II sought to address these gaps, as well as the other gaps already identified as part of the original papers. Because the Task Forces were implemented as part of the Phase II program, support was provided at all levels to assist EAD staff and stakeholders in addressing and identifying gaps, collecting data, conducting analyses and developing spatial products, building stakeholder relationships, and ultimately, developing a refined Sector Paper.

The Sector Papers are a source of valuable environmental and socioeconomic information for Abu Dhabi and were used to review and refine the State of the Environment (SoE) report for Abu Dhabi as well as develop the Abu Dhabi Environmental Atlas (both hard-copy and interactive versions).

For more information and online versions

For more information about AGEDI or to access online versions of the Sector Papers, please visit the AGEDI website at www.agedi.ae

ملخص تنفيذي

أقرت إمارة أبوظبي من خلال هيئتها المختصة بالبيئة بالإضافة إلى الأطراف المعنية الأخرى عدداً من السياسات للحفاظ على البيئة والتي تم دعمها بالتشريعات التنظيمية والقرارات التنفيذية بالإضافة إلى تحديد المسؤوليات نحو النهوض بالالتزامات البيئية الإقليمية والعالمية.

وتختلف السياسات المعتمدة من حيث التفاصيل والشمولية والفاعلية - كما يرد في هذا التقرير - غير أنها تغطي معظم المجالات الهامة التي تؤثر على البيئة أو تتأثر بها، مثل نوعية الهواء والتغير المناخي والتنوع البيولوجي وإدارة النفايات والموارد المائية.

لقد واكبت هيئة البيئة - أبوظبي الطفرة التنموية التي تمر بها الإمارة عن طريق النهوض بدور رئيسي في وضع التشريعات التنظيمية والسياسات عوضاً عن الانشغال بالبرامج التنفيذية المحدودة، وهو الأمر الذي يجب أن تركز عليه المؤسسات الحكومية وخاصة في المرحلة الحالية.

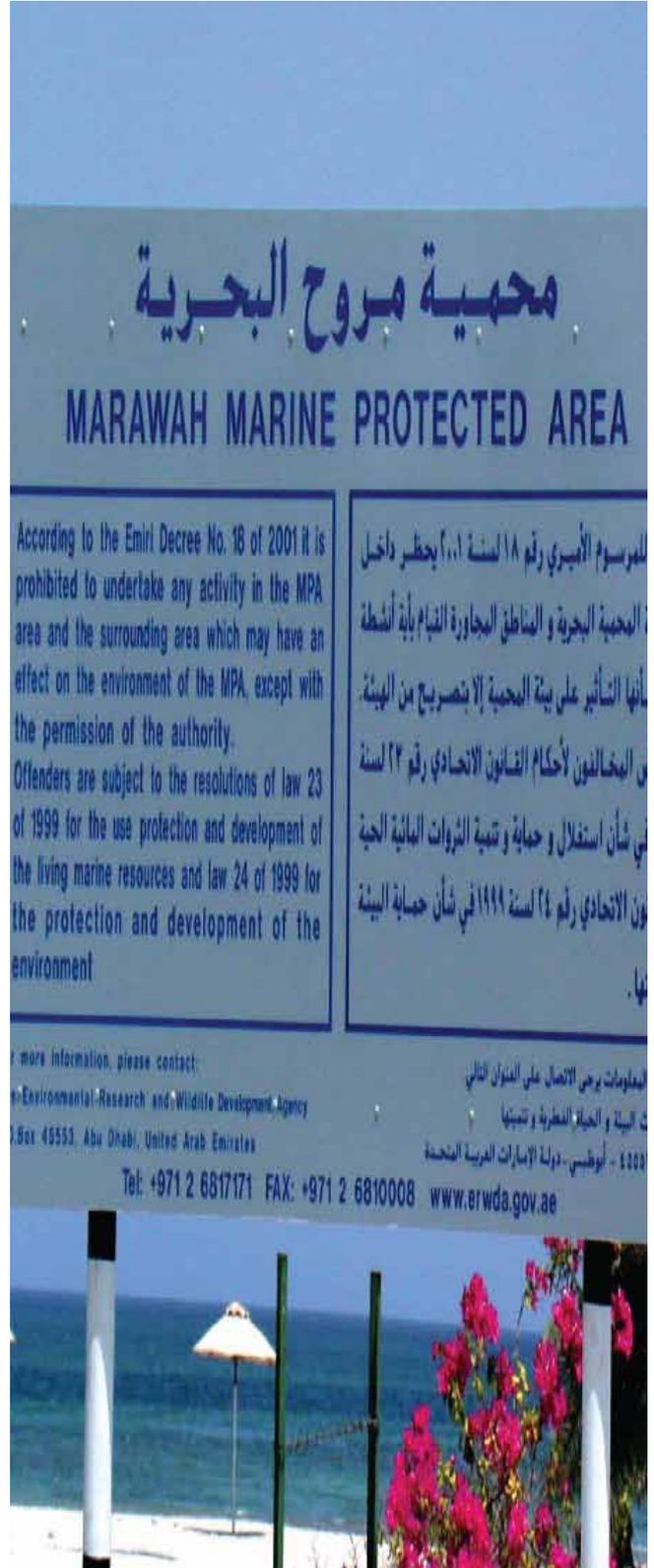
وتم في هذا الإطار إعادة هيكلة وظائف الهيئة، مما أدى إلى بروز قطاعات عمل جديدة (مثل قطاع السياسات البيئية وقطاع إدارة الإستراتيجية) وذلك للمساعدة في تطبيق بعض المفاهيم الإدارية الجديدة مثل الخصخصة ونظم العمل من خلال الشراكات مع المؤسسات الأخرى.

ولم تكن المفاهيم التي تم تطويرها قاصرة على محيط هيئة البيئة - أبوظبي، بل تعدت ذلك إلى الجهات المعنية على مستوى الإمارة، كما هو الحال في مشروع نظام إدارة البيئة والصحة والسلامة والذي شكل سبباً وريادة عالمية في تطوير وتطبيق نظام إداري متكامل للبيئة والصحة والسلامة على مستوى الإمارة والقطاعات والوحدات المختلفة.

لقد كانت هنالك العديد من الخطوات الكبيرة في عام 2008م والتي سوف تضع بصماتها بالتأكيد على جهود إعادة تشكيل السياسات ومراقبة تطبيقها في المستقبل:

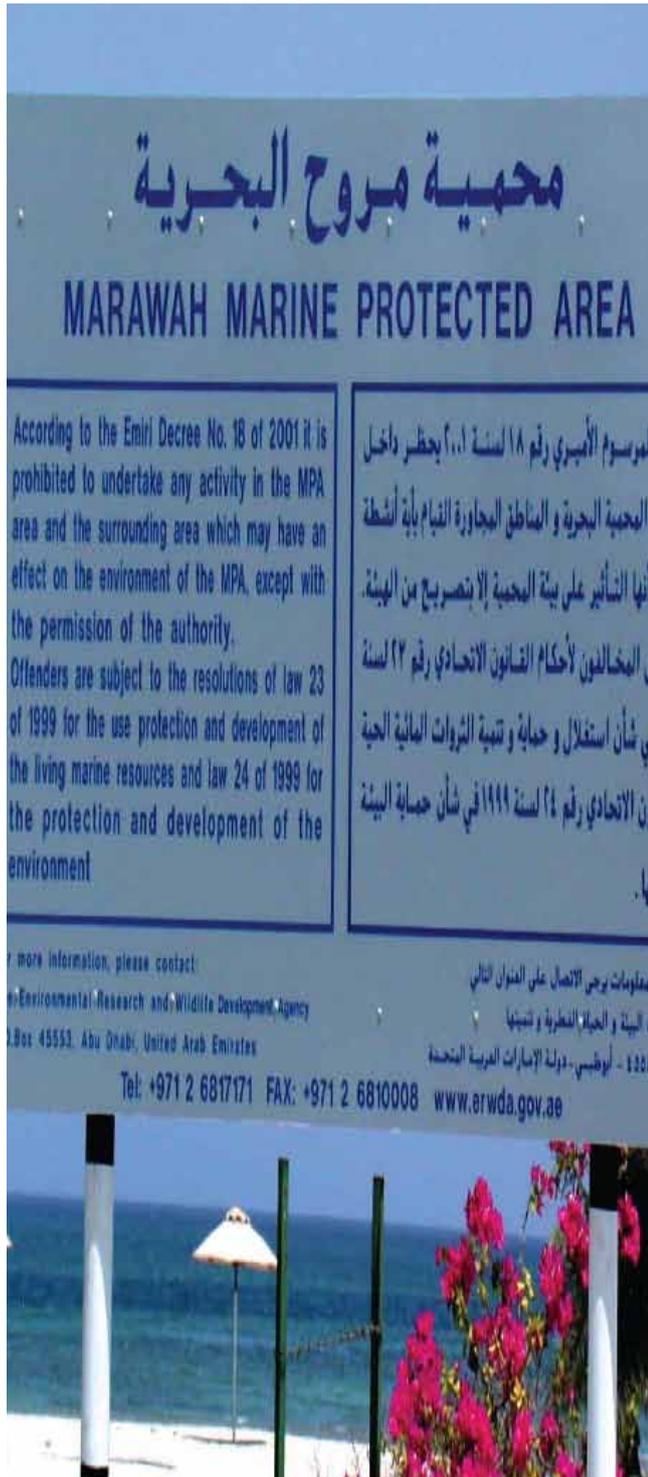
- فقد أنشئ مركز أبوظبي لإدارة النفايات لتنسيق القضايا والاهتمامات المتصلة بالنفايات في الإمارة،
- كما أطلق نظام إدارة البيئة والصحة والسلامة، واستطاعت العديد من القطاعات تحقيق التطور المنشود، وبدأت في تطبيق النظم الخاصة بها وفقاً لمتطلبات هذا النظام المتكامل على مستوى الإمارة، وسوف تصبح هذه المتطلبات إلزامية في القانون المقترح لنظام إدارة البيئة والصحة والسلامة في إمارة أبوظبي،
- كما كسبت البنية التحتية للبيانات المكانية في إمارة أبوظبي العديد من الإنجازات والثمار المشهود بها في هذا المجال،
- وأعلنت المزيد من المحميات الطبيعية التي تساهم في الحفاظ على النظم والأنواع المختلفة،
- وتم إبرام شراكات إستراتيجية لعشر وخمس سنوات في مجالات نوعية الهواء ومستويات الضوضاء وأنشطة حماية البيئة المختلفة،
- وأنشئت الأكاديمية العربية للمياه لبيدأ التحضير لبرامجها وأنشطتها التي تؤكد ريادة أبوظبي ومساهمتها في دعم التعاون الدولي في القضايا العالمية والإقليمية الهامة.

وبالرغم من ذلك كله، فإن هنالك العديد من التحديات والمعوقات التي يتوقع أن تواجه جهود تطوير الأداء في المستقبل، وتتطلب المراجعة المستمرة للسياسات ونظم العمل الحالية. وتكمن هذه التحديات في أسلوب العمل الحكومي الحالي والنظم الجزائية. ومن ذلك الفهم الخاطئ للفصل بين الوظائف والمسؤوليات، وغياب التنسيق المحوري للأدوار المشتركة، وعدم وضوح المهام المتداخلة بين الجهات المختلفة، بالإضافة إلى عدم وجود نظام جزائي حاسم وفعال (أو عدم تطبيقه في بعض الحالات) لردع المخالفين وتحسين العمل البيئي في إمارة أبوظبي.



POLICIES AND REGULATIONS SECTOR PAPER

EXECUTIVE SUMMARY



Abu Dhabi Emirate, either through the Environment Agency and/or other concerned parties, has instated a number of policies supported by regulations and decrees to preserve and improve the environment while addressing its responsibilities towards regional and international commitments.

As it is detailed in this collective effort, endorsed policies differ in the level of details, completeness and effectiveness but nonetheless tap on to the most important issues affecting and affected by the environment; namely but not exclusive to air quality, climate change, biodiversity, waste management and water resources.

Environment Agency – Abu Dhabi (EAD) has been influenced by the development cycle the government is undergoing and has evolved to take a major role in setting regulations and policies in lieu of implementer of programs, which is the natural role a government institution should play. In that sense, major restructuring efforts have resulted in emerging of new business sectors in the agency (e.g., Environmental Policy and Strategy Management Sectors) supported by new management approaches like outsourcing and partnering with other institutions. The management approaches adopted were not limited to EAD boundaries but some were designed to target other concerned parties in the whole of the Emirate, such as the Environment, Health and Safety Management System (EHSMS) initiative, which is a world first, and demonstrates international leadership in the field of EHS integration and management. In 2008, major actions have materialized that will definitely reshape the mode in which policies are set and implementation is monitored. Abu Dhabi Waste Management Centre was created to streamline all issues related to waste in the Emirate; EHS management system was launched and a number of sectors are on board and started development of their systems as per the requirements of Abu Dhabi Emirate EHSMS which became mandatory with the anticipated issue of the EHSMS law; Abu Dhabi Spatial Data Infrastructure (AD-SDI) has gained a lot of ground and its fruits are being recognized; protected areas have been declared resulting in species preservation; ten-year and five-year strategic partnerships have been established in the fields of air quality and noise levels as well as in the environmental protection activities; the Arab Water Academy was founded, and more to come.

A number of challenges, however, still hinder the performance expected from the set policies. These challenges exist in the governance, institutions and penal systems represented by the misinterpretation of the roles and responsibilities, the absence of pivotal function, ambiguity of the mandate, the overlapping with others and the absence of effective (or in some cases the implementation of) a well structured and effective penal system to deter offenders and enhance the environmental work in Abu Dhabi.

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1 Background



Environment Agency – Abu Dhabi (EAD) has evolved from a do-it-all government institution to a policy and regulation oriented institution in the environment field for Abu Dhabi Emirate.

EAD was established in 1996 by Law No. (4) of 1996, as amended, under the name “Environment Research and Wildlife Development Agency”. It was the first environmental agency established at Emirate level to protect the environment and wildlife biodiversity through monitoring and scientific research.

In 1999, the role of the agency changed drastically after the issuance of Federal Law No. (24) of 1999 concerning Protection and Development of the Environment, which was the first comprehensive environmental law issued at the UAE level.

In order to facilitate implementation of this law, the Executive Council of Abu Dhabi Emirate issued a Decree on 27 November 2000 nominating the Agency as the Competent Authority responsible for all environmental affairs in the Emirate.

Federal Law No. (24) of 1999 and other environmental laws, issued at Federal and Emirate levels in recent years, added more responsibilities to EAD and called for a major change in its functions. For this purpose, H.H Sheikh Khalifa Bin Zayed Al Nahyan, President of UAE, and as Ruler of Abu Dhabi Emirate, issued Law No. (16) of 2005 pertaining to the re-organization of the Agency to become “Environment Agency-Abu Dhabi”.

Law No. (16) defines the legal mandate of the Agency; specifically, its main responsibilities in implementing the requirements of Laws and Regulations issued at Emirate and Federal levels and establishes the legal framework for the Agency’s role in the protection of the environment and achieving sustainable development.

2 Governance



The UAE is governed by a Federal system founded on the 2 December 1971. The union comprises seven Emirates: Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah and Fujairah. The seven Emirates vary in terms of size, population, economic resources and degree of development.

Abu Dhabi is the largest of the seven Emirates, with an area of 67,340 sq km, constituting 86.67% of the UAE. Abu Dhabi City, which is the capital of the UAE, is an island on the Gulf with an area of about 60 sq. km. It comprises the islands of Das, Seer Bani Yas, Mubarraz, Dalma, Saadiyat and Umm Al Nar. The Emirate has other cities such as Dhafra, Ruwais and Wathba in the Western Region. The Eastern Region includes Al Ain, which has a series of mountains having natural spring water that runs underground.

Dubai is the second largest Emirate in UAE and Ajman is the smallest Emirate with an area of only 259 square kilometres.

Table 1: UAE area by Emirate

Emirate	Area in Sq Km	% from total
Abu Dhabi	67,340.0	86.7
Dubai	3,885.0	5.0
Sharjah	2,590.0	3.3
RAK	1,683.5	2.2
Fujairah	1,165.5	1.5
UAQ	777.0	1.0
Ajman	259.0	0.3
Total*	77,700.0	100.0
UAE Total Area	83,600.0	

Source: Ministry of Economy * Excluding Islands (total area: 5,900 sq km)

2.1 Political and Administrative Structure at Federal Level

Since the establishment of the Federation in 1971, the seven Emirates comprising the UAE have forged a distinct national identity through consolidation of their Federal status and now enjoy an enviable degree of political stability. The UAE political system, which is a unique combination of the traditional and the modern, has underpinned this political success, enabling the country to develop a modern administrative structure while at the same time ensuring that the best of the traditions of the past are maintained, adapted and preserved.

Each of the component Emirates of the Federation already had its own existing institutions of government, and

to provide for the effective governing of the new state, the Rulers agreed to draw up a provisional Constitution specifying those powers which were to be allocated to new Federal institutions, all others remaining the prerogative of the individual Emirates.

Assigned to the Federal Authorities, under Articles 120 and 121 of the Constitution, were the areas of responsibility for foreign affairs, security and defence, nationality and immigration issues, education, public health, currency, postal, telephone and other communications services, air traffic control and licensing of aircraft, as well as a number of other topics specifically prescribed, including labour relations, banking, delimitation of territorial waters and extradition of criminals.

In parallel, the Constitution also stated in Article 116 that: 'the Emirates shall exercise all powers not assigned to the federation by this Constitution'. This was reaffirmed in Article 122, which stated that 'the Emirates shall have jurisdiction in all matters not assigned to the exclusive jurisdiction of the federation, in accordance with the provision of the preceding two Articles'.

The new Federal system of government included the following structure which remains intact:

1. A Supreme Council,
2. A Cabinet of Ministers,
3. A Parliamentary body, the Federal National Council (FNC),
4. An independent Judiciary, at the peak of which is the Federal Supreme Court.

In a spirit of consensus and collaboration, the rulers of the seven Emirates agreed during the process of federation that each of them would be a member of Supreme Council, the top policy-making body in the country. They agreed also that they would elect a president and a vice president from amongst their number to serve for a five-year term of office. The Ruler of Abu Dhabi Emirate, H.H Sheikh Zayed bin Sultan Al Nahyan, was elected as the first President, a post to which he was re-elected at successive five yearly intervals until his passing away in 2004 and was succeeded by his eldest son and heir, H.H Sheikh Khalifa bin Zayed Al Nahyan; the Ruler of Dubai, H.H Sheikh Rashid bin Saeed Al Maktoum, was elected as first Vice President, a post he continued to hold until his death in 1990, and was succeeded by his eldest son and heir, H.H Sheikh Maktoum bin Rashid Al Maktoum until his death in January 2006. He was succeeded by his brother H.H Sheikh Mohammed bin Rashid Al Maktoum.

The FNC has 40 members drawn from the Emirates on the basis of their population, with eight for each of Abu Dhabi and Dubai, six each for Sharjah and Ras Al Khaimah, and four each for Fujairah, Umm Al Quwain (UAQ) and Ajman. Presided over by a Speaker, or either of two Deputy Speakers, elected from amongst their number, the FNC is responsible under the Constitution for examining, and, if it wishes, amending, all proposed Federal legislation, and is empowered to summon and to question any Federal Minister regarding Ministry performance. One of the main duties of the FNC is to discuss the annual budget. Specialized sub-committees and a Research and Studies Unit have been formed to assist FNC members to cope with the increasing demands of modern government.

The Federal Judiciary, whose independence is guaranteed under the Constitution, includes the Federal Supreme Court and Courts of First Instance. The Federal Supreme Court consists of five judges appointed by the Supreme Council of Rulers. The judges decide on the constitutionality of Federal Laws and arbitrate on intra-Emirate disputes and disputes between the Federal government and the Emirates. Federal Law No. (1) of 1972 was issued concerning the function of Ministries and the powers of the Ministers and the Laws issued in amendment thereof.

2.2 Political and Administrative Structure at Emirate Level

Parallel to, and, on occasion, interlocking with the Federal institutions, each of the seven Emirates also has its own local government. Although all have expanded significantly as a result of the country's growth over the last 30 years, these differ in size and complexity from one Emirate to another, depending on a variety of factors such as population, area, and degree of development. Thus the largest and most populated Emirate, Abu Dhabi, has its own central governing organ, the Executive Council, chaired by the Crown Prince, Sheikh Mohammed bin Zayed Al Nahyan. The Eastern and Western Regions of Abu Dhabi Emirate are headed by an official with the title of Ruler's Representative. There is also a Ruler's Representative on the important oil terminal island of Das.

The main cities in Abu Dhabi Emirate, Abu Dhabi City and Al Ain City, as well as the Western Region, are administered by municipalities, each of which has a nominated municipal council. A new set of members for the Abu Dhabi Municipal Council was appointed in November 2001. Abu Dhabi's National Consultative Council, chaired by a Speaker, and with 60 members selected from among the Emirate's main tribes and families, undertakes a role similar to that of the FNC on country level, questioning local government officials and examining and endorsing

local legislation. It is also a source of vocal suggestion for the introduction or revision of Federal legislation.

Administration in the Emirate is implemented by a number of local departments, covering topics such as public works, finance, customs and management. Some have a responsibility for the whole of the Emirate, although in certain spheres there are also departments covering only the Eastern Region.

A similar pattern of municipalities and departments can be found in each of the other Emirates, while Sharjah, with its three enclaves on the country's east coast, has also adopted the practice of devolving some authority on a local basis, with branches of the Sharjah Emiri Diwan (Court), headed by deputy chairmen, in both Kalba and Khorfakkan. Sharjah has also created an Executive Council to cover the whole Emirate. In smaller or more remote settlements, the ruler and government of each Emirate may choose a local representative, an emir or '*wali*', to act as a conduit through which the concerns of inhabitants may be directed to government. In most cases, these are the leading local tribal figures, whose influence and authority derive both from their fellow tribesmen and from the confidence placed in them by the ruler, an example of the way in which local leaders within the traditional system have become involved with, and lend legitimacy to, the new structures of government.

Traditionally, the ruler of an Emirate, the sheikh, was the leader of the most powerful, though not necessarily the most populous tribe, while each individual tribe, and often its various sub-sections, also generally had a chief or sheikh. Such rulers and chiefs maintained their authority only insofar as they were able to retain the loyalty and support of their people, in essence a form of direct democracy, though without the paraphernalia of western forms of suffrage. Part of that democracy was the unwritten but strong principle that the people should have free access to their sheikh, and that he should hold a frequent and open '*majlis*', or council, in which his fellow tribesmen could voice their opinions.

3 Governmental Environmental Institutions



3.1 General Overview

The late H.H Sheikh Zayed bin Sultan Al Nahyan, former President of the UAE, outlined the commitment to the protection of the environment in UAE when he stated:

“We are responsible for taking care of our environment & wildlife, protect it and preserve it not only for the sake of our current generation, but also for the sake of our children and grandchildren, it is our duty to be loyal to our ancestors as well as our successors”.

Realizing the strong connection between development and the environment, and the need to keep up environmental protection efforts, the UAE established the Higher Environmental Committee in 1975 by Cabinet of Ministers Decree No. (13). This committee was established at the Ministry of Health and was attached to the Cabinet of Ministers. The committee consisted of elite members representing various governmental departments and Ministries. The purpose of this committee was to set environmental laws, regulations and management systems to achieve environmental safety, and to set requirements for incorporating environmental considerations into planning policies for development in the country. This principle or concept has become a corner stone in setting later developmental policies at Federal and Local levels in the UAE.

Municipalities in each Emirate also played a key role during that period because they were responsible for a wide range of services including protection of the environment. Municipalities coordinate with each other through the General Secretariat for Municipalities, which is a Federal Agency, established in 1980.

However, it became clear after the Earth Summit in Rio-Brazil in 1992 that developing countries ought to develop their environmental capacities and increase their efforts to pursue sustainable development and implement environmental strategic plans.

The establishment of Environmental institutions in UAE was a major step in that direction. These include:

1. The Ministry of Environment and Water (previously Ministry of Agriculture and Fisheries), UAE
2. The Federal Environmental Agency, UAE, 1993 (The executive arm of the Ministry)
3. Environmental Research and Wildlife Development Agency (ERWDA), Abu Dhabi Emirate, 1996 (Renamed in 2005 to "Environment Agency-Abu Dhabi")
4. Environment and Protected Areas Authority, Sharjah Emirate, 1998
5. Environment Protection and Industrial Development Authority, Ras Al Khaimah Emirate, 1999
6. Environment Departments at Dubai, UAQ, Ajman and Fujairah Municipalities

3.2 Environmental Institutions

3.2.1 Federal Environmental Agency

The Federal Environmental Agency (FEA) was established by Federal Law No. (7) of 1993. This Law was amended twice by Federal Law No. (30) of 2001 and Federal Law No. (20) of 2004. FEA was established as an independent entity with financial and administrative independence and annexed to the Cabinet of Ministers in UAE.

The objectives for establishing the Agency are:

1. To protect and develop the Environment within UAE;
2. To determine the necessary plans and policies to safe guard it from damaging activities, particularly those affecting human health, agricultural crops, wildlife, marine life, other natural resources and atmosphere;
3. To implement such plans and policies; to take all suitable measures and actions to prevent deterioration of the environment;
4. To combat environmental pollution of all kinds, and to minimize effects of pollution for the welfare of the present and future generations.

FEA has facilitated the issuance of Federal Environmental Law No. (24) of 1999 concerning the Protection and Development of the Environment. This law is considered

the first comprehensive Federal Environmental Law in UAE. It includes 101 Articles that concentrate on different environmental issues mainly the development of the environment, protection of water, air and soil from pollution, handling of hazardous substances, hazardous wastes and medical wastes, development of protected areas and protection of the marine environment. FEA has also issued an Executive Order that includes five regulations on impact assessment of projects; management of pesticides, agricultural additives and fertilizers; protection of the marine environment; handling of hazardous substances, hazardous wastes and medical wastes; protection of air from pollution. The formulation of this Law began in 1994 and the first draft that was issued in June 1995, was revised by a committee comprising 40 members and representing all parties with environmental and developmental concerns within UAE. This Law was issued by the President of the country, the Late Sheikh Zayed Bin Sultan Al Nahyan, on 17th October 1999 and went into force in February 2000.

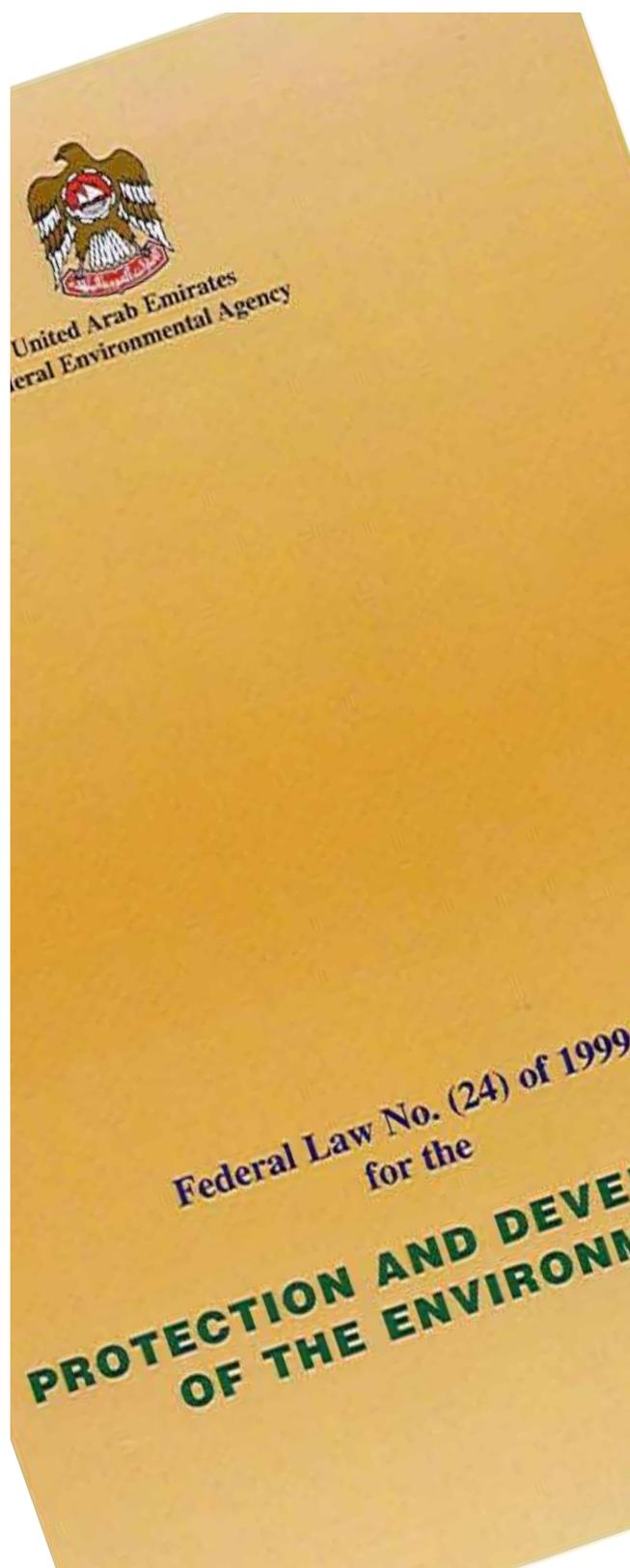
FEA has also prepared the UAE National Environmental Strategy and National Environmental Action Plan in cooperation with all concerned parties in UAE

3.2.2 Environment Agency - Abu Dhabi

The Environmental Research and Wildlife Development Agency (ERWDA) was established by Abu Dhabi Emirate Law No. (4) of 1996 as amended.

In June 2005, and as per Abu Dhabi Emirate Law No. (16), ERWDA was restructured giving it more authority in all environmental efforts. As per the same Law, ERWDA was renamed to become Environment Agency - Abu Dhabi (EAD). EAD structure is discussed in depth in later chapters of this report.

4 Environmental Laws and Legislations



4.1 General Overview

Federal Laws are passed by the President of the country. In UAE all Federal Laws and Federal Executive Orders are reviewed and approved by the Ministry of Justice and Islamic affairs (AWQAF, Justice Sector-legislation and legal advice) prior to their final approval and passing.

Federal Laws must be implemented by a Competent Authority at Federal Level and/or by different Competent Authorities in each Emirate. Federal Laws constitute the minimum requirement for implementation and should not be violated. However, each Emirate can develop and implement Local Laws that are more stringent than the Federal Laws. In absence of laws at the Federal level, relevant international standards and environmental criteria can be adopted and utilized until such time when a law is established and approved.

At Abu Dhabi Emirate level, laws are usually drafted by the local governmental authorities. A draft copy of the Law is then submitted through the managing/executive board of that party to the general secretary of Abu Dhabi Emirate Executive Council for revision, discussion and consultation with the council's legal advisors. Accordingly, the council will make a decision to pass or deny the Law. If accepted, the final Law will be submitted to the Emirate ruler for his approval and signature. Upon approval, the Executive Council general secretary will direct all local governmental authorities to support the new Law and the Law will be published in the official gazette of the Emirate including its effective date for implementation. Once published, the concerned party which initiated the Law prepares the Executive Order of the Law and/or its administrative orders for its implementation. A website is developed (www.mohamoon-uae.com) and hosts all relevant laws, decrees and regulations for the country and organized in a way that facilitates search by theme, emirates, type of law and protocols. There has been a significant increase in environmental awareness and the adoption of many significant environmental laws and policies within UAE and Abu Dhabi Emirate since the Earth Summit held in 1992. These national laws and policies play a vital role in establishing the environmental goals and objectives at UAE federal and local levels.

While environmental enforcement in UAE may still be less stringent than other parts of the western world, the UAE is gradually establishing national policies on key environmental issues, including sustainable development, water resources, environmental pollution, urbanization, land resources degradation, biodiversity, and marine resources. The following discussion is to provide an overview of the main Laws and Regulations that pertains to protection of Air, Water, and Land environments and their scope. UAE and Abu Dhabi Emirate are focused on environmental protection, marine resources, and wildlife conservation.

The basis for legal framework of each focus area is based on the following Laws:

4.2 Federal Laws and Legislations

4.2.1 Federal Law No. (24) of 1999: Protection and Development of the Environment

Federal Law No. (24) concerning the Protection and Development of the Environment was issued on 17 October 1999. This Law was the first comprehensive environmental law in the UAE at Federal Level and it entered into force in February 2000. This law aims to achieve the following goals:

- Protection and conservation of the quality and natural balance of the environment.
- Control of all forms of pollution and avoidance of any immediate or long term harmful effects resulting from economic, agricultural, industrial, development or other programs aiming at improving life standards and coordination between the agency, competent authorities and parties concerned with the protection of the environment and conservation of the quality, balance and consolidation of environmental awareness and principles of pollution control.
- Development of natural resources and conservation of biological diversity in the region of the emirate and the exploitation of such resources with consideration of present and future generations.
- Protection of society, human health and the health of other living creatures from activities and acts, which are environmentally harmful or impede authorized use of the environmental setting.
- Protection of the emirate's environment from the harmful effects of activities undertaken outside the emirate.
- Compliance with international and regional conventions ratified or approved by the UAE regarding environmental protection, control of pollution and conservation of natural resources.

This Law contains 101 Articles divided into 9 Chapters:

- Chapter 1: Development and the Environment: deals with the standards, specifications, principles and regulations for the assessment of environmental impact of development projects taking into consideration aspects of protection of the environment in development plans, environmental monitoring networks and emergency plans.
- Chapter 2: Protection of Water Environment: specifies the standards and regulations in accordance with regional and international conventions for the Protection of the marine environment regardless of source (chemical, oil, wastes, etc.) from marine means or establishments near the coast line, it also deals with the protection of drinking water and ground water.
- Chapter 3: Soil Protection: deals with land utilization and development of the desert environment as well as the conservation of agricultural areas and the protection of soil from pollution resulting from the use of pesticides, fertilizers, etc.
- Chapter 4: Protection of Air from Pollution: deals with the standards, regulations and permissible levels necessary for the protection of air from pollution from different sources, in addition to environmental standards, occupational health and noise.
- Chapter 5: Handling of Hazardous Substances, Hazardous Wastes and Medical Wastes: deals with the standards, specifications, principles and regulations for handling or using hazardous substances, hazardous wastes and medical wastes in accordance with regional and international conventions, such as the prohibition of importation of hazardous wastes to the country or its final disposal in any form in the environment.
- Chapter 6: Natural Reserves: deals with natural reserves in the country and the specifications for the boundaries of such areas as well as the Competent Authorities responsible for its protection and development. In addition, it also specifies the prohibited acts which may lead to damage or deterioration of such areas.
- Chapter 7: Liability and Compensation for Environmental Damages: specifies the judicial control powers for the inspection of establishments and other places to verify their compliance with the application of the provisions of this Law and resolutions issued for its enforcement, the costs of treatment or removal of such damages and any compensation incurred as a result.
- Chapter 8: Penalties: sets the penalties for punishment of individuals or establishments upon violation of the provisions of this law.
- Chapter 9: Final Provisions: deals with different subjects concerning licenses for establishments and activities, the fees required for the activities and procedures and licenses granted under

the provisions of this Law. In addition to the incentives awarded to organizations, agencies, establishments and individuals undertaking jobs or projects for the protection and development of the environment in the UAE and the period required for the establishments existing at the date of operation of this Law to amend their status according to its provisions.

This Law was amended on 7 May 2006 by Law No. (11). The main changes concerns Articles (12) and (83) which deal with species, and three annexes were added classifying these species into three categories according to their environmental and cultural and social values in UAE.

5.2.1.1 Executive Order of the Law

The Law contains several environmental principles and standards. Some of these principles and standards are dealt with in the Executive Order of the Law. The Executive Order of the Law was issued by the Cabinet of Ministers in two Decrees:

Decree No. (37) of 2001 includes the following regulations:

- Regulation concerning Environmental Impact Assessment of Projects;
- Regulation concerning Handling of Hazardous Substances, Hazardous Wastes and Medical Wastes;
- Regulation concerning Protection of the Marine Environment;
- Regulation concerning Agricultural Pesticides and Fertilizers.

Decree No. (12) of 2006 includes the following regulation:

- Regulation concerning the Protection of Air from Pollution.

5.2.1.2 Competent Authorities of the Law

FEA is the legislative body authorized for the implementation of the Law at Federal Level. A Local Authority was nominated in each Emirate of the United Arab Emirates as the Competent Authority responsible for implementation of this law. The Competent Authorities are as follows:

Abu Dhabi Emirate	Environment Agency of Abu Dhabi
Dubai Emirate	Dubai Municipality

Sharjah Emirate	Environment and Protected Areas Authority
Ajman Emirate	Ajman Municipality
UAQ Emirate	UAQ Municipality
RAK Emirate	Environment Protection and Industrial Development Authority
Fujairah Emirate	Fujairah Municipality

Since EAD is the Competent Authority in Abu Dhabi Emirate, all governmental departments and agencies must work in collaboration with EAD when developing any regulations, policies and decrees that include environmental and wildlife issues.

4.2.2 Federal Law No. (23) of 1999: Exploitation, Protection and Development of Living Aquatic Resources

Federal Law No. (23) concerning the Exploitation, Protection and Development of Living Aquatic Resources was issued on 17 October 1999. This Law aims to conserve and develop the living aquatic resources in UAE through a set of regulatory procedures including the establishment of a committee for registration. This law bans the following activities:

- Fishing without a license from the Competent Authority;
- Using any fishing equipment that is harmful to the marine environment and marine resources including the import and use of equipments that are not licensed;
- Fishing during breeding seasons and in areas where fishing is prohibited on temporary or permanent basis;
- Fishing off foreign ships in territorial waters;
- Fishing of sea turtles and whales and dugongs and other marine mammals since they are considered endangered species except for scientific research purposes and after approval from the Competent Authority.

The Law includes 64 Articles in 10 Chapters as follows:

- Chapter 1: Organization of Fishing Practices
- Chapter 2: Registration of Fishermen and Fishing Boats
- Chapter 3: Licensing of Fishing Boats

Chapter 4: Protection and Development

Chapter 5: Handling, Manufacturing and Marketing

Chapter 6: Loans for Fishermen

Chapter 7: Export of Living Aquatic Resources

Chapter 8: Re-export and Transboundary Movement

Chapters 9 and 10: Penalties and Final Provisions.

5.2.2.1 Executive Order of the Law

The Executive Order No. (302) of the Law was issued in 2001 and includes 77 Articles in 9 Chapters. It covers in details the regulatory procedures for the implementation of the Law.

5.2.2.2 Competent Authorities of the Law

The Ministry of Environment and Water (previously Ministry of Agriculture and Fisheries) is the legislative party responsible for implementation of this Law. In each Emirate, there is a Competent Authority for implementation of the Law. In Abu Dhabi Emirate, EAD was nominated as the Competent Authority.

4.2.3 Federal Law No. (1) of 2002:

Regulation and Control of the Use of Radioactive Sources

Federal Law No. (1) of 2002 concerning the Regulation and Control of the Use of Radioactive Sources and Control against its Hazards was issued on 6 January 2002. When issued, this law was the responsibility of the Ministry of Energy. On 17 January 2005, Decree No. (39/4) of 2005 was issued by the Cabinet of Ministers concerning the transfer of the responsibility of this Law to the Federal Environmental Agency. This law aims to control the use of radioactive sources in UAE and to control its hazards. It includes 19 Articles that deal with the following:

1. Establishment of a department at FEA to perform the following:

- Prepare rules and procedures for safe handling of radioactive sources;
- Cooperate with concerned parties in regulating practices related to radiation and in issuing licenses;
- Inspection and control of radioactive sources in cooperation with the Competent Authority in the

Emirate;

- Supervision of training programs for rehabilitating technical staff to facilitate implementation of this law;
- Preparation of emergency plans to combat disasters at country level.

2. Formulation of a committee responsible for protection against radiation, headed by FEA and including representatives from all concerned parties. The responsibilities of the committee mainly include approval of emergency plans and rules and procedures for protection against radiation. In addition, the committee will be responsible for proposing licensing fees and other regulatory issues.

This Law bans the following activities:

- The import, export, transport, storage, operation, manufacture or handling of Ionized Radioactive Sources;
- Treatment or Disposal of Radioactive wastes resulting from these activities;
- Installation of radioactive sources or construction of facilities and laboratories or stores for handling Ionized Radioactive Sources or storing it;

The Law specified that Health Authorities in UAE should be responsible for licensing radioactive activities in the medical field.

The Law also includes several penalties.

This Law was amended on 21 June 2006 by Law No. (20). The main changes concerns Articles 1, 2, 3 and 8, mainly changing the Minister of Energy to Minister of Environment and Water, and the concerned Department to FEA.

4.2.3.1 Executive Order of the Law

Two Ministerial Decrees (5 and 55) were issued in 2003 concerning approval of the basic regulatory rules for protection against radiation. Relevant guidelines issued for Law No. (1) are the following:

- Ministerial Decree (56/2004) concerning the Regulations for Safe Transport of Radioactive Materials;
- Ministerial Decree (57/2004) concerning the Regulations for Radioactive Waste Management;
- Basic Regulations for Protection against Ionizing Radiation.

4.2.3.2 Competent Authorities of the Law

The Federal Environmental Agency is the legislative party

responsible for implementation of this Law. A department is established at FEA to process all the procedures for the control of radioactive sources. Responsibilities and functions of the Competent Authorities in each Emirate are specified by the committee.

4.2.4 Federal Law No. (11) of 2002: Regulation and Control of International Trade in Endangered Species

Federal Law No. (11) of 2002 concerning Regulation and Control of International Trade in Endangered Species of Wild Fauna and Flora was issued on 26 October 2002. This Law was issued for the purpose of implementing the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) which UAE became party to in 1990. The main objective of the Law is to regulate trade in endangered plant and animal species and their derivatives as specified by the Appendices of the convention.

This Law includes 40 Articles and covers the following issues:

- Scope of application: applies to all specimens of the species listed in the Appendices that are part of the International Convention of Trade in Endangered Species of Wild Fauna and Flora.
- General provisions: Import, transit and trans-shipment, export, re-export, and introduction from the sea of any specimen of the species listed in the Appendices should be in accordance with the provisions of this Law.
- Responsibilities of the Management Authorities, which include revision of applications for granting permits and certificates, communication with the secretariat of the convention and other parties on scientific, administrative and enforcement issues, maintain records of international trade and preparation of annual reports.
- Responsibilities of the Scientific Authority, which include giving advice to the Management Authorities on issues related to trade in certain species, protection of species and on the disposal of confiscated specimens.
- International trade documents required upon issuance of a permit or certificate.
- Exceptions in trade with some species.
- Trade with non-parties to the convention.
- Penalties for trading without permits.

4.2.4.1 Executive Order of the Law

The Executive Order of the Law was issued by Cabinet of Ministers Decree No. (22) on 20 October 2003 and includes 22 Articles. It covers in details the regulatory procedures for

the implementation of the Law.

4.2.4.2 Competent Authorities

For the sake of implementing this Law, two Management Authorities and one Scientific Authority have been nominated:

Management Authorities

- In Abu Dhabi: Federal Environmental Agency.
- In Northern Emirates: Ministry of Environment and Water.

Scientific Authority

- The Environment Agency of Abu Dhabi has been nominated as the Scientific Authority of the Law in order to advise the Management Authorities on matters related to trade in endangered species.

4.3 Local Laws

The most important Environmental Local Laws implemented in Abu Dhabi Emirate are:

- Law No. (5) of 1970 concerning Hunting as amended by Law No. (1) of 1978.
- Law No. (4) of 1996 concerning Establishment of Environmental Research and Wildlife Development Agency and its amendments. *Replaced by Law No. (16) of 2005.*
- Law No. (13) of 2005 concerning Regulation of Grazing in Abu Dhabi Emirate and its Resolution issued in 2006.
- Law No. (16) of 2005 concerning the Re-organization of the Environment Agency-Abu Dhabi. (Replaced Law No. (4) of 1996, as amended by Law No. (1) of 1997 and Law No. (2) of 1999).
- Law No. (21) of 2005 for Waste Management in Abu Dhabi Emirate.
- Law No. (22) of 2005 concerning Animal Hunting in Abu Dhabi Emirate.
- Law No. (6) of 2006 concerning organization of drilling of Groundwater wells.

Annex (2) includes a list of Federal and Local Environmental laws.

Laws related to Health and Safety:

- Federal Law No. (8) of 1980 concerning Regulation of Working Relations and Ministerial Order No. (32) of 1982 on the determination of retentive methods and measures for the protection of workers from risks at work.

- Federal Law No. (27) of 1981 concerning Control of Communicable Diseases.
- Law No. (1) of 2006 concerning Civil Service and its Executive Order (issued in October 2007) relating to the civil service Law.

4.4 Laws and Legislations Related to the Industrial Sector

The government has sought to build the investor confidence and encourage investment in this country; therefore, the following economical legislations and regulations were developed and have been implemented:

- Federal Law No. (14) of 1976 concerning Industrial Standards and Specifications.
- Local Law No. (6) of 1976 concerning Abu Dhabi Chamber of Commerce and its Amendments.
- Cabinet of Ministers Decree No (538/28) of 1980 concerning Waiving all Equipment and Machinery and Industrial Heavy equipment and Packaging materials of customs fees and/or taxes.
- Federal Law No. (8) of 1984 concerning Business Companies and its Amendments.
- Cabinet of Ministers Decree No. (578/5) of 1985 concerning Favours of Local Products in Governmental Purchases.
- Cabinet of Ministers Decree No. (8/8) of 1986 for Compliance with Mandatory Standards and Specifications.
- Cabinet of Ministers Decree No. (269/3) of 1986 for Setting Nominal Fees for Industrial Projects Registration of the first time.
- Federal Law No. (44) of 1992 set the provisions for the protection of industrial ownership. This Law includes provisions that shall lead to encouragements of transfer of technical inventions to UAE from all around the world since they will be protected.
- Federal Law No. (1) of 1997 concerning the Organization of Industrial Issues has provided various advantages for industrial investors. It consists of (41) articles and includes provisions to provide land for industrial project with no fees or with nominal fees or rent it at very low cost. It also includes provisions to provide water and electricity to the industrial project at very low cost, wave all machinery, equipment, spare parts, construction materials needed in the project, raw material, and other material needed for production from taxes and customs fees.
- Local Law No. (5) of 1998 concerning Permit Issuance in Abu Dhabi Emirate.

4.5 Implementation of International Policies

As part of its national environmental policies which are directed towards protection and development of the environment at national, regional and global level, the UAE became party to many regional and international environmental conventions that deal with the atmosphere, chemicals and hazardous wastes, biodiversity and wildlife, desertification and the marine environment.

Prior to ratification, the country has to sign the treaty (convention or protocol). Signature constitutes a preliminary and general endorsement of the treaty by the country in question. It is not a legally binding step, but it is an indication that the country intends to undertake a careful examination of the treaty in good faith to determine its position towards it. A country can become a State party to a treaty either by ratification or accession. Both of these acts signify an agreement to be legally bound by the terms of the treaty. Most commonly, a country will sign the treaty shortly after it has been adopted and follow this up with ratification when all procedures required by domestic law have been satisfied. Countries that have not signed can become State Parties directly, through accession.

Both ratification and accession involve two steps:

- The appropriate organ(s) of the country (Parliament, Senate, the Crown, and Head of State/Government) make(s) a formal decision to be a party to the treaty in accordance with relevant domestic constitutional procedures.
- A formal letter, under seal, referring to the relevant decision, signed by the country's responsible authority is prepared. This is the instrument of ratification or accession. The government (normally the Ministry of Foreign Affairs) deposits the instrument of ratification or accession with the Secretary-General of the United Nations (or to a regional party in case of regional conventions). This original document is submitted to the UN Office of Legal Affairs in New York. The treaty will specify the length of time, after receipt of the instrument of ratification or accession, before it will take effect.

In UAE, a Federal Decree is usually issued by the President of the country and signed by the Rulers of the Seven Emirates for ratification/accession to the convention/protocol. Prior to this step, the concerned party which will become the focal point for the convention/protocol has to get the approval of the Cabinet of Ministers. The official documents of ratification/accession are deposited through the Ministry of Foreign Affairs.

UAE is currently a party to many International and Regional Environmental Conventions/Protocols; some of the most important are listed below.

4.5.1 International Conventions and Protocols

4.5.1.1 Vienna Convention and Montreal Protocol

In 1985, and in order to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the Ozone Layer, the Vienna Convention for the Protection of the Ozone Layer was born. The Vienna Convention entered into force on 22 September 1988.

In September 1987, an agreement was reached on specific measures to be taken concerning a number of chemical substances (CFCs: CFC 11, 12, 113, 114, and 115 and several Halons: 1211, 1301, 2402) that affect the ozone layer and the Montreal Protocol on Substances that Deplete the Ozone Layer was adopted. The Protocol came into force on 1 January 1989.

Four Amendments were made to the Protocol as follows:

- The London Amendment: this amendment was adopted in 1990 at the Second Meeting of the Parties to the Montreal Protocol held in London. The amendment introduced control measures for both production and consumption for three new groups of substances, namely other halogenated CFCs, Carbon Tetrachloride (CCL4), and Methyl Chloroform or 1,1,1 trichloroethane. Control measures also included restrictions on trade with non-Parties. The London Amendment entered into force on 10 August 1992.
- Copenhagen Amendment: this amendment was adopted in 1992 at the Fourth Meeting of the Parties to the Montreal Protocol held in Copenhagen. The amendment introduced control measures for consumption only for HCFCs, for both production and consumption for two new groups of substances, namely HBFCs and Methyl Bromide. The Copenhagen Amendment entered into force on 14 June 1994.
- Montreal Amendment: this amendment was adopted in 1997 at the Ninth Meeting of the Parties to the Montreal Protocol held in Montreal. This is the only amendment that did not introduce new substances to the protocol. Instead, the amendment introduced the requirement for licensing systems to allow control and monitoring of trade in substances controlled under the protocol. The Montreal Amendment

- entered into force on 10 November 1999.
- Beijing Amendment: this amendment was adopted in 1999 at the Eleventh Meeting of the Parties to the Montreal Protocol held in Beijing. The amendment introduced control measures for production for HCFCs and imposed restrictions on trade with non-Parties for these HCFCs. The amendment further introduced control measures for both production and consumption for one new group of substances, namely, Bromochloromethane or BCM. The Beijing Amendment entered into force on 25 February 2002.

UAE Procedures

The UAE acceded to both the Vienna Convention and the Montreal Protocol on 22 December 1989. The UAE also acceded to the amendments of Montreal Protocol on 16 February 2005. The focal point for the convention and the protocol is the FEA. In order to meet its international commitments and to implement the Convention and the Protocol, two Decrees were issued by the Chairman of FEA in 1999:

- Decree No. (13) of 1999 Concerning Handling of Ozone Depleting Substances (ODSs) which includes CFCs (11, 12, 113, 114, 115) and (R500 & 502) and Halons (1211, 1301, 2402).
- Decree No. (23) of 1999 Concerning the Establishment of a Permanent Committee to Regulate the Imports of ODSs in UAE.

Certain procedures concerning the phase out of imports of these substances have been set by the permanent committee in order to meet the phase out schedule. A Licensing System was established and enforced in January 2001 in cooperation with Customs Authorities and Environmental Competent Authorities in different Emirates.

In 2003, Cabinet of Ministers Decree No. (16) was issued concerning the addition of fees to licenses given by FEA to importing companies. This procedure was taken to promote the transfer to Ozone Friendly Substances.

According to the schedule set for Article (5) Countries, importation of CFCs, Halons and CCL4 shall be banned on 1 January 2010. As for appliances, FEA is working with the licensing departments in each of the Emirates in UAE to ban the importation of appliances containing CFCs in order to encourage the transfer to appliances containing Ozone Friendly Substances.

The Environment Management Sector (EMS) at EAD is

responsible for chemical release operations in Abu Dhabi Emirate. EMS works in cooperation with FEA to control the imports and re-exports of ODSs through custom outlets.

By the end of 2007, UAE reached 85% reduction rates in its imports of Ozone Depleting Substances (CFCs and Halons) and banned the imports of CCL4.

4.5.1.2 Convention on International Trade of Wild Species of Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation. CITES was conceived in the spirit of such cooperation. Today, it accords varying degrees of protection to more than 30,000 species of animals and plants, whether they are traded as live specimens, fur coats or dried herbs. Endangered species are grouped and listed in the following Appendices:

- Appendix I: includes all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to further endanger their survival and must only be authorized in exceptional circumstances.
- Appendix II includes:
 - a) All species which, although not necessarily now threatened with extinction, may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival; and
 - b) Other species which must be subject to regulation in order that trade in specimens of certain species referred to in paragraph (a) above may be brought under effective control
- Appendix III: includes all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other Parties in the control of trade.

The convention was adopted on 3 March 1973, and entered into force on 1 July 1975.

UAE Procedures

UAE acceded to CITES on 8 February 1990. The focal point for the convention is the FEA.

For the purpose of implementing CITES, Federal Law No. (11) of 2002 concerning Regulation and Control of International Trade in Endangered Species of Wild Fauna and Flora was issued on 26 October 2002. A permitting system is established in UAE to control the international trade as per the requirements of the convention.

The Environment Agency of Abu Dhabi has been nominated as the Scientific Authority of the Law in order to advise the Management Authorities on matter related to trade in endangered species.

4.5.1.3 Basel Convention on Transboundary Movements of Hazardous Wastes

In the late 1980s, a tightening of environmental regulations in industrialized countries led to a dramatic rise in the cost of hazardous waste disposal. Searching for cheaper ways to get rid of the wastes, "toxic traders" began shipping hazardous waste to developing countries and to Eastern Europe. When this activity was revealed, international outrage led to the drafting and adoption of the Basel Convention.

Because hazardous wastes pose such a potential threat to human health and the environment, one of the guiding principles of the Basel Convention is that, in order to minimize the threat, hazardous wastes should be dealt with as close to where they are produced as possible. Therefore, under the Convention, transboundary movements of hazardous wastes or other wastes can take place only upon prior written notification by the State of export to the competent authorities of the States of import and transit. Each shipment of hazardous waste or other waste must be accompanied by a movement document from the point at which a transboundary movement begins to the point of disposal. Hazardous waste shipments made without such documents are illegal. In addition, there are outright bans on the export of these wastes to certain countries. Transboundary movements can take place, however, if the state of export does not have the capability of managing or disposing of the hazardous waste in an environmentally sound manner. The Basel Convention entered into force in 1992.

The UAE signed the convention in 1990 and became a party in November 1992.

UAE Procedures

UAE ratified Basel Convention on 17/11/1992. The focal point for the convention is the FEA.

In order to implement its commitments in the convention, Federal Law No. (24) of 1999 concerning Protection and Development of the Environment included one chapter about Handling of Hazardous Substances, Hazardous Wastes and Medical Wastes, and a Regulation was issued in December 2001 as part of the Executive Order of the Law.

According to Article (62/1) of this Law, *“no public or private party or qualified or unqualified persons are allowed to import or bring, bury or dispose of hazardous wastes in any form in the environment of the UAE”*.

Transboundary movement of hazardous wastes is controlled by FEA through a permitting system. A decision was issued by FEA Board of Directors in 2002 which bans the movement of hazardous wastes through UAE boundaries.

4.5.1.4 United Nations Framework Convention on Climate Change (UNFCCC)

The First World Climate Conference recognized climate change as a serious problem in 1979. This scientific gathering explored how climate change might affect human activities. It issued a declaration calling on the world's governments *“to foresee and prevent potential man-made changes in climate that might be adverse to the well-being of humanity”*.

Human activities release greenhouse gases into the atmosphere. Carbon dioxide is produced when fossil fuels are used to generate energy and when forests are cut down and burned. Methane and nitrous oxide are emitted from agricultural activities, changes in land use, and other sources. Artificial chemicals called halocarbons (CFCs, HFCs, and PFCs) and other long-lived gases such as sulphur hexafluoride (SF₆) are released by industrial processes. Ozone in the lower atmosphere is generated indirectly by, amongst other things, automobile exhaust fumes and other sources.

Rising levels of greenhouse gases change the climate. By absorbing infrared radiation, these gases control the way natural energy flows through the climate system. In

response to humanity's emissions, the climate has started to adjust to a *“thicker blanket”* of greenhouse gases in order to maintain the balance between energy arriving from the sun and energy escaping back into space. Observations show that global temperatures have risen by about 0.6 °C over the 20th century. There is new and stronger evidence that most of the observed warming over the last 50 years is attributable to human activities.

A number of intergovernmental conferences focusing on climate change were held in the late 1980s and early 1990s. In May 1992, the United Nations Framework Convention on Climate Change was adopted and was signed by the majority of the countries during the Rio *“Earth Summit”*. The Convention entered into force on 21 March 1994.

4.5.1.5 Kyoto Protocol

The Kyoto Protocol was adopted at the 3rd Conference of the Parties in December 1997. The Kyoto Protocol requires governments to take even stronger action. The parties to the Convention agreed by consensus that developed countries should accept a legally binding commitment to reduce their collective emissions of six greenhouse gases by at least 5% compared to 1990 levels by the period 2008-2012. The Protocol also establishes an emission trading regime and a *“Clean Development Mechanism”*.

The purpose of CDM is to assist parties not included in Annex I (such as UAE) in achieving sustainable development and in contributing to the ultimate objective of the convention and it also assists parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

Parties not included in Annex I will benefit from project activities resulting in certified emission reductions and Parties included in Annex I may use certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3 as determined by the Conference of the Parties.

The Kyoto Protocol went into force on 16 February 2005.

UAE Procedures

UAE acceded to UNFCCC on 29 December 1995 and to the Kyoto Protocol on 26 January 2005. The focal point for the convention and the protocol is the Ministry of Energy.

According to Articles (4) & (12) of the convention, parties, including oil producing countries, are required to prepare

their National Communication Report on greenhouse gases emissions. A National Committee was established to prepare the National Communication to UNFCCC in 2000 by Ministerial Decree No. (69) following the issuance of Cabinet of Ministers Decree No. (5/5) of 2000 concerning approval of establishing this committee. The committee is headed by the Ministry of Energy - Petroleum and Mineral Resources Sector and included representatives from various concerned parties in UAE.

Five sectors were formed to work on this issue in 2002 headed by FEA; they are: Energy Sector, Industry and Solvents Sector, Agricultural Sector, Land Use and Forests Sector and Wastes Sector.

Several factors have delayed the elaboration of the UAE's First National Communication to the UNFCCC including the difficulty to produce a detailed energy use database for the UAE as a whole because of the fragmented nature of data collection and ownership.

As per Cabinet of Ministers Decree No. (5/5) of 2000 concerning the approval of establishing a National Committee for the Preparation of the National Communication, and Cabinet of Ministers Decree No. (114/1) of 2005 concerning the renaming of the committee, the National Permanent Committee for Preparation of the UNFCCC National Communication was re-established by Ministerial Decree No. (26) of 2005. An Executive Committee was also established by the same Decree in 2005.

In October 2005, an expert was hired by the Environment Agency of Abu Dhabi as per the request of the Ministry of Energy, from the Stockholm Institute for Environment, in New York-USA, to prepare the First National Communication for UAE.

Prior to ratifying the Kyoto Protocol in January 2005 a National Higher Permanent Committee for Clean Development Mechanism (CDM) was established in UAE by Cabinet of Ministers Decree No. (11) of 2004, it is also called the UAE Designated National Authority (DNA) Committee. This committee was formulated from different concerned parties in UAE by Ministerial Decree No. (25) of 2005 with many functions among which are:

- Ensuring that any activity within the frame work of CDM will help in achieving sustainable development in UAE.
- Ensuring that activities within the frame work of CDM will lead to the transfer of environmentally safe and sound technologies and serve UAE purposes.
- Taking decisions related to activities of CDM.

- Monitoring of CDM projects in UAE through collection of related data.
- The committee acts in the capacity of designated national authority with the Executive Board in issues related to CDM Projects.
- Follow up of the decisions issued from the Executive Board of CDM.
- Raising all issues related to CDM to the Council of Ministers.
- Practicing all technical, economic and legal aspects related to CDM.

An Executive Committee was formulated as part of the DNA Committee on 12 February 2006 as per Ministerial Decree No. (12) of 2006. This Committee is headed by EAD. The committee will be responsible for the implementation of CDM related scientific, economical, and legal activities and to provide recommendations to the Higher Committee.

4.5.1.6 United Nations Convention to Combat

Desertification (UNCCD)

The international community has long recognized that desertification is a major economic, social and environmental problem of concern to many countries in all regions of the world. In 1977, the United Nations Conference on Desertification adopted a Plan of Action to Combat Desertification. However, it was not until several years later that the United Nations Convention to Combat Desertification was adopted on 17 June 1994. It entered into force on 26 December 1996.

UAE Procedures

The UAE acceded to the UNCCD on 21 October 1998. The FEA is the focal point for the convention.

To facilitate and follow up the implementation of this convention, a National Committee was established in UAE by FEA Chairman Decree No. (20) of 2001. The Committee is headed by FEA and includes representatives from all concerned parties in UAE including EAD. As per the requirements of the UNCCD convention and especially Articles 5, 9 & 10 which state that parties to the convention should prepare a strategy and national action programs to combat desertification within the framework of the plans and policies of the country to achieve sustainable development. The UAE formulated its "*Strategy and National Action Programs to Combat Desertification*" in 2003. It was approved by Cabinet of Ministers Decree No. (593/2) of 2003. Implementation of the strategy is being followed up by the National Committee.

4.5.1.7 Convention on Biological Diversity (CBD)

At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for “sustainable development”: *meeting our needs while ensuring that we leave a healthy and viable world for future generations*. One of the key agreements adopted at Rio was the Convention on Biological Diversity.

Biological diversity is the term given to the variety of life on Earth and the natural patterns it forms. The biodiversity we see today is the fruit of billions of years of evolution, shaped by natural processes and, increasingly, by the influence of humans. It forms the web of life of which we are an integral part and upon which we so fully depend. The Convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources. This convention went into force on 29 December 1993.

UAE Procedures

UAE ratified CBD on 10 February 2000. The FEA is the focal point for the convention.

To facilitate the implementation of this convention a National Committee was established by Chairman of FEA Decree No. (40) of 2004. The Committee is headed by FEA and includes representatives from all concerned parties in UAE including EAD. One of the responsibilities of this committee is to formulate a National Strategy for Biodiversity.

The UAE has also prepared its first National Report on Biodiversity in 2005 as per the requirements of the convention.

4.5.2 Regional Conventions & Protocols

4.5.2.1 Kuwait Regional Convention for cooperation on the Protection of the Marine Environment from Pollution

The Convention is the basic legal instrument binding the eight States of the Region (Saudi Arabia, Oman, Qatar, Bahrain, UAE, Kuwait, Iraq and Iran) to coordinate their activities towards protection of their common marine environment. The Convention was adopted with the objective to ensure that development projects and other human activities do not in any way cause damage to the marine environment, jeopardize its living resources or create hazards to human health.

Another objective of the Convention was the development of an integrated management approach to the use of the marine environment and the coastal areas in a sustainable way which will allow the achievement of environmental and developmental goals in a harmonious manner. To this effect, the importance of cooperation and coordination of action on a regional basis with the aim of protecting the marine environment and the coastal areas for the benefit of present and future generations is emphasized throughout the Convention.

The Regional Organization for the Protection of the Marine Environment (ROPME) was established on 1 July 1979 to implement the Kuwait Action Plan, as well as the Kuwait Regional Convention and its Protocols.

The Convention which was signed on 24 April 1978, entered into force on 1 July 1979. UAE ratified this convention on 1 December 1979. The FEA is the focal point for the convention and the protocols.

5.5.2.1.1 ROPME Protocols

ROPME Protocols have been developed in accordance with the recommendations of the Legal Component of the KAP. These Protocols have made the mandate of the Kuwait Regional Convention more specific and have had an important role in harmonizing the policies of Contracting States concerning protection of the environment under the national jurisdiction of each State and that of the Region. Meetings of regional/international experts are convened regularly to examine the status of implementation of various programs in order to ensure that the provisions of the Protocols are complied with.

1. Protocol Concerning Regional Cooperation in Combating Pollution by oil and other Harmful Substances in cases of Emergency, 1978

The objective of the Protocol is to provide cooperative and effective preventive and response measures to deal with marine emergencies caused by oil and other harmful substances. Marine emergency means any casualty, incident, occurrence or situation, however caused, resulting in substantial pollution or imminent threat of substantial pollution to the marine environment by oil or other harmful substances and includes, *inter alia*, collisions, stranding and other incidents involving ships, including tankers, blow-outs arising from petroleum drilling and production activities, and the presence of oil or other harmful substances arising from the failure of industrial installations. The Protocol with 13 Articles and an Appendix on guidelines for reporting marine emergencies has the same status of participation as the Convention. This protocol was signed with the convention on 24 April

1978 and entered into force on 1 July 1979. UAE ratified this protocol with the convention on 1 December 1979.

2. Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf, 1989

The objective of the Protocol is to coordinate regional activities towards protection of the marine environment against pollution from exploration and exploitation of oil and gas in the continental shelf. The Protocol with fifteen articles and four Guidelines is a broad framework for developing comprehensive action plans delineating the obligations of Contracting States at the national and regional levels for sound environmental practices in offshore exploration and production (E&P) activities. The Protocol has the same status of participation as the Convention. This protocol was signed by all member countries on 29 March 1989. The UAE ratified this protocol on 17 April 1990.

3. Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources, 1990

The Kuwait Regional Convention stipulates that the Contracting States shall take all appropriate measures to prevent, abate and combat pollution by discharges from land reaching the sea area whether water-borne, air-borne, or directly from the coast including outfalls and pipelines.

The protocol addresses regional guidelines, regulations and permits for the release of wastes. Accordingly, regional regulations for the waste discharge and/or degree of treatment should be specific for each kind of sources and, if necessary, may be different between existing and new sources. The protocol was signed on 21 February 1990 and entered into force on 2 January 1993. The UAE signed this protocol in 1990.

4. Protocol on the Control of Marine Trans-boundary Movements and Disposal of Hazardous Wastes and Other Wastes, 1998

The main objectives of the Protocol are to protect the marine environment of the Protocol Area from detrimental effects of hazardous wastes and other wastes, to assist Contracting States in environmentally sound management of wastes they generate, and to enhance cooperation and coordination of action on a regional basis with the aim of controlling the transboundary movements of hazardous wastes and other wastes. To this effect, the transboundary movements of wastes, the dumping of wastes at sea, the ballast water of oil tankers and the wastes of commercial ships are covered by the Protocol.

The promotion of regional cooperation for the establishment and management of reception facilities for the reception and treatment of ballast water and other wastes from ships and for the development of an effective monitoring and surveillance system to detect and control dumping of wastes at sea, are fully addressed in the Protocol.

The Protocol was signed by the member countries on 17 March 1998. The UAE ratified this protocol on 1 August 2005.

4.5.2.2 Convention on the conservation of Wildlife and their Habitats in GCC

This convention was approved in December 2001 by the Leaders of the GCC Countries (Saudi Arabia, UAE, Qatar, Kuwait, Bahrain and Oman) during the 22nd Session of the Supreme Council in Oman. The main objective of the convention is to conserve the ecological systems and wildlife, especially endangered species which can be found or migrate among GCC countries including territorial waters and air.

The UAE signed this convention in 2001 and ratified it on 30 January 2003. FEA was nominated as the focal point; however' a regional committee was established to follow-up on the implementation of this convention and EAD is the UAE representative in this committee.

Annex (3) includes a list of all regional and international environmental conventions and protocols ratified/acceded to by UAE.

5 Strategies & Policies



5.1 UAE National Strategy

UAE has been among the leading countries in the region in complying with the obligations of Rio environmental process in terms of its policy support to Agenda 21, and in the supporting consultations (national as well as regional) associated with the World Summit for Sustainable Development and the Rio conventions.

The preparation of the National Environmental Strategy was initiated by the Federal Environmental Agency in 1996 in cooperation with UNDP and included three phases:

Phase I: The National Environmental Priorities for UAE: completed in 1997.

Phase II: The National Environmental Strategy: completed in 1998.

Phase III: The National Environmental Action Plan: completed in 2000.

In order to represent all sectors, a steering committee was established from different concerned parties in the UAE to prepare the National Environmental Strategy and National Action Plan. Representatives from concerned parties were grouped into ten sectors as follows: Municipalities, Water Resources, Marine Environment, Planning and Urban Environment, Agriculture and Land Resources, Industry, Energy, Health, Education and Environmental Awareness, Oil and Gas.

The developmental objectives of the National Environmental Strategy and Action Plan were set as follows:

- To enhance the commitment by UAE to build a welfare society with a diversified economy and to protect the environment by adopting the principles of sustainable development by introducing environmental dimensions into the national planning process of development.
- To ensure that future generations are not burdened with environmental debts of today's actions and a legacy of depleted resources and environmental problems.

When identifying the major environmental issues in the United Arab Emirates, the following aspects were taken into consideration

- The Effect on Public Health: Environmental pollution directly or indirectly leads to health problems, or even early death. This is considered as a high cost for the population accounted for by the amount of government spending to control diseases, resulting from pollution, such as chest

diseases. In fact, funds spent on programs to minimize the spread of pollution are less than funds spent on treating the diseases caused by pollution. There is therefore, a direct relationship between environmental changes such as the changes resulting from water or air pollution and their effect on public health.

- The Effect on Economic Output: Environmental deterioration reduces the productivity of natural resources and hence the natural capital. The indicators of natural resources deterioration are manifested in the loss of plants and animals or areas of fertile soil or forests. Environment supports development by its resources, climate, renewal and reproduction. Development should also support the environment by preserving environmental dynamics and ability of renewal through creating a balance between supply and demand of natural resources especially the renewable ones, and through efficient investment in production and consumption and continuity of the natural capital.
- Ecological Effects: Environmental degradation has significant effect on ecological systems. The unsustainable use of resources is one of the main causes which handicap ecological cycles, e.g. self-purification ability of seas and ability of fish to reproduce. Degradation in land resources also reduces biological diversity.
- Aesthetic Effects: Aesthetic environmental values have their effects on human health physically and psychologically and on economic production and ecological systems. They directly or indirectly affect heritage and historical values of the society. Material costing of these values thus becomes very difficult. Nevertheless, societies do their best to keep the environment neat and clean to be enjoyed by present and future generations.
- Risk and Uncertainty: The correct understanding of risk, uncertainty and repetitions resulting from environmental effects is an effective measure determining the sequence of priority of environmental issues. Some environmental risks have medium or long-term impact while others have uncertain effects. These cannot be measured by the traditional economic principles such as the risks that face biological diversity. Priority is measured here by the "Precautionary Principle" sometimes called "the safe minimum standard".

5.2 UAE National Agenda 21

The UAE National Agenda 21 represents the National Priorities for the Environmental Strategy and Action plan. To identify such an Agenda, environmental issues in UAE and their causes were investigated in the first phase of the

strategy which was completed within one year. During this phase there were comprehensive analyses of statistics, data, and related indicators. Accordingly, National Priorities for Environmental Action (National Agenda 21) were identified as follows:

- Water Resources
- Pollution (water, air, waste)
- The Marine Environment
- Urbanization
- Land Resources Degradation and Biodiversity

Cabinet of Ministers Decree No. (3) of 2002 approved the National Environmental Strategy and the National Environmental Action Program. In order to implement this program, UAE established the "*National Committee for the Environmental Strategy and Sustainable Development*" by Cabinet of Ministers Decree No. (17) of 2002. This committee is headed by FEA with members from all concerned parties in UAE including the EAD.

In 2003, Working Committees within the National Committee were established by Chairman of FEA Decree No. (5) of 2005 to follow up on the implementation of the action plan and projects. The Working Committees are:

- Pollution (Air, Water and Wastes) Committee
- Agriculture and Land Resources Committee
- Water Resources Committee.
- Marine Environment Committee.
- Energy Committee.
- Urban Environment, Health and Industry Committee.

5.3 UAE Government Strategy:

In April 2007, H.H Sheikh Mohammad bin Rashid Al Maktoum, Vice president of the UAE, declared the UAE Government Strategy for 2008 -2010. This strategy is based on H.H Sheikh Khalifa Bin Zayed Al Nahyan National Program established in 2005. The UAE's three year strategy focused on 6 sectors, including:

- Social development,
- Economical development,
- Governmental sector development,
- Justice and safety,
- Infrastructure including environment,
- Remote area development.

The strategy addresses 21 relevant issues aiming at putting UAE number one internationally through achievement of a sustainable and balanced economy and development to secure prosperity to all UAE citizens. The strategy sets the foundation for a new era of governmental work in the UAE which became necessary to cope with the ever challenging economical changes, and emphasized implementation of best practices to achieve prosperity and strengthen UAE status both regionally and internationally.

The national strategy includes several principles, most important of which is to enhance the level of services provided for citizens and residents of the UAE and solidifying efforts and resources in cooperative frame works that are based on UAE human factor. It focuses on continual enhancement of cooperation between federal and local authorities, activation of regulatory frame works and policy settings in ministries, enhancement of decision making mechanisms, and the enhancement of effectiveness and efficiencies of governmental entities and advancing of their services and customer focus. The strategy also focuses on the development of civil services laws and regulations and relevant national capacity building through focus on competency, innovations, excellence, effective Emiratization, preparation and qualification of second line leaders, more delegation of authority to ministries in the way they run their business, and the review and updates of laws and regulations.

The principles will be achieved through setting out of coordinated ministerial plans and effective and efficient systems to measure performance of governmental entities' implementation plans within the six identified sectors. These sectors were prioritized due to their lack of strategic planning and lack of administrative, legal, and legislative frame work, as well as absence of clear polices with regards to all vital and important activities which may be attributed to the size and speed of changes in the few past years.

Sheikh Mohammad declared that concern about the environment must be regarded in our work, behavioural, and living systems. Environmental awareness must also be enhanced and incorporated in to the educational systems and integrated into specifications and standards relevant to equipments, instruments, machineries, and transportation means to be made so they are environment friendly.

5.4 National Action Programs and Strategy for Combating Desertification

In 2003, the National Action Programs and Strategy for Combating Desertification was formulated in UAE. The Strategy was approved by Cabinet of Ministers Decree No. (593/2) of 2003. The Strategy is based on the UAE's first National Action Program, which was prepared in 1995, and was also built on the First National Report to the UNCCD Convention (1999) and the Second National Report to the Convention (2002) as well as the National Environmental Strategy.

The UAE Strategy and Action Plan document includes four main objectives:

- Protection of natural resources (soil, water, vegetative cover, animals) by undertaking proper protection measures and ensuring sustainable management of resources.
- Preparedness to face dry conditions and alleviate its impacts.
- Reducing the impact of erosion and halting the creeping sand dunes.
- Developing human capacities and improving its technical expertise and raising environmental awareness.

5.5 Abu Dhabi Environmental Strategy 2000-2004

In 1999, EAD organized the environmental strategy plan workshop in order to set the basis for a five year strategic environmental action plan for Abu Dhabi Emirate. An environmental strategy and action plan for the Emirate of Abu Dhabi was drafted in December 1999 and identified and addressed the Emirate's environmental needs over five years (2000 - 2004). The strategic goals and actions proposed in the plan were built on perceived environmental priorities. Their aim was to support the sustainable development of the Emirate, enhance the well being of its environment, and ensure a legacy for future generations. The Abu Dhabi Emirate has set six strategic goals to establish the following within the Emirate:

- An environmental and natural resources regulatory system
- An environmental and natural resources monitoring system
- A management regime for fisheries
- A management regime for fresh water resources
- A regime for management and rehabilitation of wild life
- A society with increased environmental awareness

In 2006, EAD revised the Strategy to develop the draft 2007-2011 strategic priorities.

H.E. Mohammed Al-Bowardi, Secretary General of Abu Dhabi Executive Council and Managing Director of Environment Agency-Abu Dhabi, has stated that “the Environment Strategy is about to change, led by government, business and community working together to build a bright, strong and sustainable future”.

Abu Dhabi Environment Strategy has been developed collaboratively with multiple stakeholders to draw the defining framework for the next five years. The strategic plan offers approach to EAD environmental focus and internal resources efforts in the near future. Seven new long term results oriented goals have been established.

The ‘vision for Abu Dhabi environment’ has three pillars; (1) Environmental Components, (2) Institutional Framework and (3) International Responsibility.

EAD Strategic Goals are detailed in the “Abu Dhabi Environment Strategy: A Roadmap to the Future” published by the Agency in 2007 and briefly addressed hereafter with specific emphasis on the role of environmental policy.

The first goal: Enhance the Legal and Administrative Framework Towards Achieving the Objectives of Sustainable Development. This goal is designed to reduce the impact of industrial, economic and social development on the environment. Development of a strategy for land use (including the coastal zone), natural resources management, guidelines for evaluation of the environmental impact assessment (EIA) of new projects and periodical auditing of representative industries and other major human activities is an essential management tool for achieving sustainable development. This is a preventive approach towards reducing the environmental and health burdens of development. It has direct implications on the efforts to reduce the environmental impacts of development and reducing the health impacts of unsustainable patterns of development. This goal is based on two sub-goals pertaining to (1) the development of Abu Dhabi Emirate environmental policy and strategy towards achieving Sustainable Development and (2) enhancing Coordination at the Local, Federal, Regional and International Levels.

Goal 2: Develop Environment and Natural Resources Monitoring Systems,

Goal 3: Develop and Facilitate the Implementation of Environmental Management Systems,

Goal 4: Integrated and Sustainable Management of Water Resources,

Goal 5: Develop Environmental Emergency Response and Crisis Management Systems,

Goal 6: Conservation of the Biological Diversity, and

Goal 7: Enhance Public Outreach and Environmental Education and Awareness.

5.6 Abu Dhabi Strategic Plan 2008-2012

This plan sets out how the Abu Dhabi Government will realize its commitment to the four priority sectors, while also showcasing illustrative examples of planned targets and performance measures for priority areas. It also includes the strategies that Abu Dhabi Governmental entities will adopt to move the progress wheel forward driven by governmental commitment to creating world class services and economy in every aspect of life and experiences learned over the past 40 years of the country’s continual developments. Its implementation is based on all of government, people, and leading experts from the private sector working together in an accountable, transparent, and excellent manner. It is also based on integration and sustainability. This is an important action by the government since it begins a new era of the Abu Dhabi government to move forward with immense confidence in the future and great pride in the past. 23 governmental entities including EAD joined the strategic planning process at its first round.

5.7 Policy Agenda 2007-08: The Emirate of Abu Dhabi

In August 2007, Abu Dhabi government issued its Policy Agenda 2007-08 which outlines the key goals and government initiatives in development, and is underway across a range of authority and departmental portfolios in the Emirate of Abu Dhabi. It identifies the role many public and private entities will play in the further social and economic development of Abu Dhabi and identifies opportunities for the private sector to engage with the public sector. (<http://www.abudhabi.ae/>).

The vision for Abu Dhabi consists of a secure society and a dynamic open economy based on the following pillars:

- Premium education, healthcare and infrastructure assets.
- A large empowered private sector.
- The creation of a sustainable knowledge based economy.
- An optimal transparent regulatory environment.
- Complete international and domestic security.
- A continuation of strong and diverse international relationships.
- Emirate resource optimization.
- The maintenance of Abu Dhabi’s values, culture and heritage.
- A significant and ongoing contribution to the federation of the United Arab Emirates.

The document has identified four priority areas, under which all stakeholders shall contribute:

1. Economic Development
2. Social and Human Resources
3. Infrastructure and Environment
4. Whole-of-Government Initiatives

5.8 EAD Priority Areas (2008-2012)

In light of the new published Agenda and the visible reorganization of the whole government, EAD has identified 10 Priority Areas in its five years strategy (2008-2012) to align its efforts in support of the Agenda. The ten Priority Areas were designed to help protect the environment and deal with environmental challenges. The Priority Areas are derived from the Government themes and filtered based on the environmental factors and internal capabilities.

1. Environment Sustainability
2. Water Resources Management
3. Air Quality
4. Hazardous Materials and Waste Management
5. Biodiversity Management
6. Environmental Awareness
7. Environment Health and Safety Management System (EHSMS)
8. Organization Efficiency
9. Emergency Management
10. Environmental Information System

5.9 EAD Priority Areas (2009-2013)

In view of new developments at Emirate level, Strategic priorities for 2008-2012 were revised again as per the requirements of Abu Dhabi Executive Council and a new updated set of priorities were identified for the period 2009-2013, these include:

1. Improve the quality and quantity of water resources
2. Improve air quality
3. Develop Climate Change Framework
4. Set Waste Management Policy and Regulations
5. Protect the society and environment from hazardous materials
6. Conserve Abu Dhabi's biological diversity
7. Increase society's environmental awareness
8. Champion the implementation of the Environment, Health and Safety Management System
9. Promote organizational efficiency through performance management and private sector service delivery
10. Increase the efficient technology as a key enabler
11. Improve cross functional knowledge sharing
12. Maximize effectiveness of Human Capital

13. Improve intra and Inter departmental communication

6 EAD as an Organization



6.1 Organization Structures

6.1.1 Previous Organizational Structure

Originally, the EAD organizational chart (Figure 1) was based on the hierarchical model, which is the dominant mode of organization among large organizations, most corporations and governments. Members of hierarchical organizational structures chiefly communicate with their immediate superior and with their immediate subordinates. Structuring organizations in this way is useful partly because it can reduce the communication overhead by limiting information flow; however, this is one of its major limitations.

In 1999, the first strategy developed for the Agency was influenced by the adopted structure. Strategic areas revolved around six thematic fields; Regulations and Monitoring undertaken by the Environment Protection Division, Fisheries and Marine undertaken by the Marine Environment Research Centre, Water and Wildlife Resources Management undertaken by Terrestrial Environment Research Centre, and Education and Awareness undertaken by Environmental Education and Awareness Department.

Regulation and Policy had a central role in that design as it was under one of the goals and a department was specified to follow up and develop that area. However, ERWDA got caught in the web of providing environmental services to all stakeholders under its own capacity – for the large part. Environmental Protection Division (then) established a rigorous permitting system in line with Federal Law No. (24) of 1999 concerning Protection and Development of the Environment, in addition to the best international practices in the field.

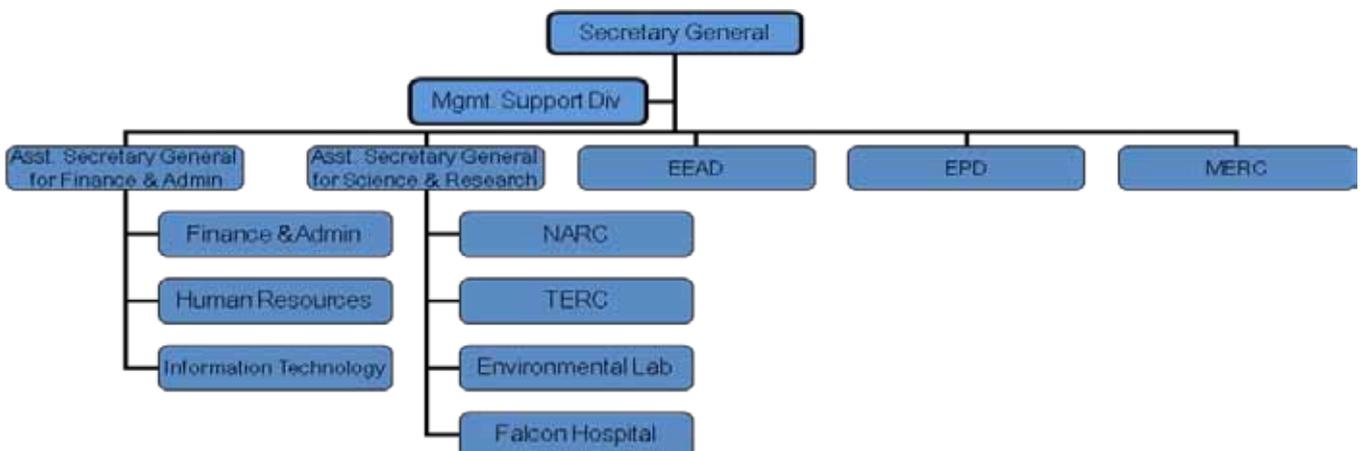


Figure 1: Organizational Structure adopted in ERWDA (1999-2008)



Figure 2: New EAD Structure introduced in May 2008

The system was also supported by a number of technical guidance documents and few internationally adopted systems in order to keep track of the industries, new developmental projects, existing facilities and all related development in multiple sectors. Amidst the focus on operation and the required level of enforcement, as well as the unprecedented wave of rapid developments on all fronts, Abu Dhabi witnessed (and still does) in the late 2004, the Regulation and Policy unit was not fully activated and the tasks assigned for that unit were being introduced under the operational arm of the division on an as-needed basis and as a reactive mode.

Realizing that protection of the environment and conservation of natural resources is the responsibility of all parties and not only of one dedicated entity, Environment Agency- Abu Dhabi has undergone a fundamental makeover focusing on engaging different government sectors and establishing strong partnerships with the private sector and community.

The change was first signalled by Law No. 16/2005 that changed the name and logo of the Agency, and emphasized its role as the competent authority responsible for all environmental affairs in the Emirate of Abu Dhabi and expanded on its mandates to ensure occupational health and safety alongside the environment. This has initiated a domino effect of changes encompassing all activities EAD is and will be undertaking; new strategy was introduced, new organizational structure was designed, new mode of operation management was adopted and a new policy

focused culture has emerged.

6.1.2 Current Organizational Structure

The vision for Abu Dhabi Environment in terms of roles and jurisdiction will fulfil a strategy whereby the responsibilities for the environment will be decentralized and shared to achieve its mission (*To protect and conserve the environment for people's well being and a better life for all*) and vision (*Towards a sustainable environment for a sustainable future*).

In this light, the Agency has adopted the Flat organization (also known as *horizontal organization*) model with fewer levels of intervening management between staff and managers (see Figure 2).

The flat organization model promotes employee involvement through a decentralized decision making process. By elevating the level of responsibility of baseline employees, and by eliminating layers of middle management, comments and feedback reach all personnel involved in decisions more quickly. Expected response to customer feedback can thus become more rapid. Since the interaction between workers is more frequent, this organizational structure generally depends upon a much more personal relationship between workers and managers (http://en.wikipedia.org/wiki/Flat_organization).

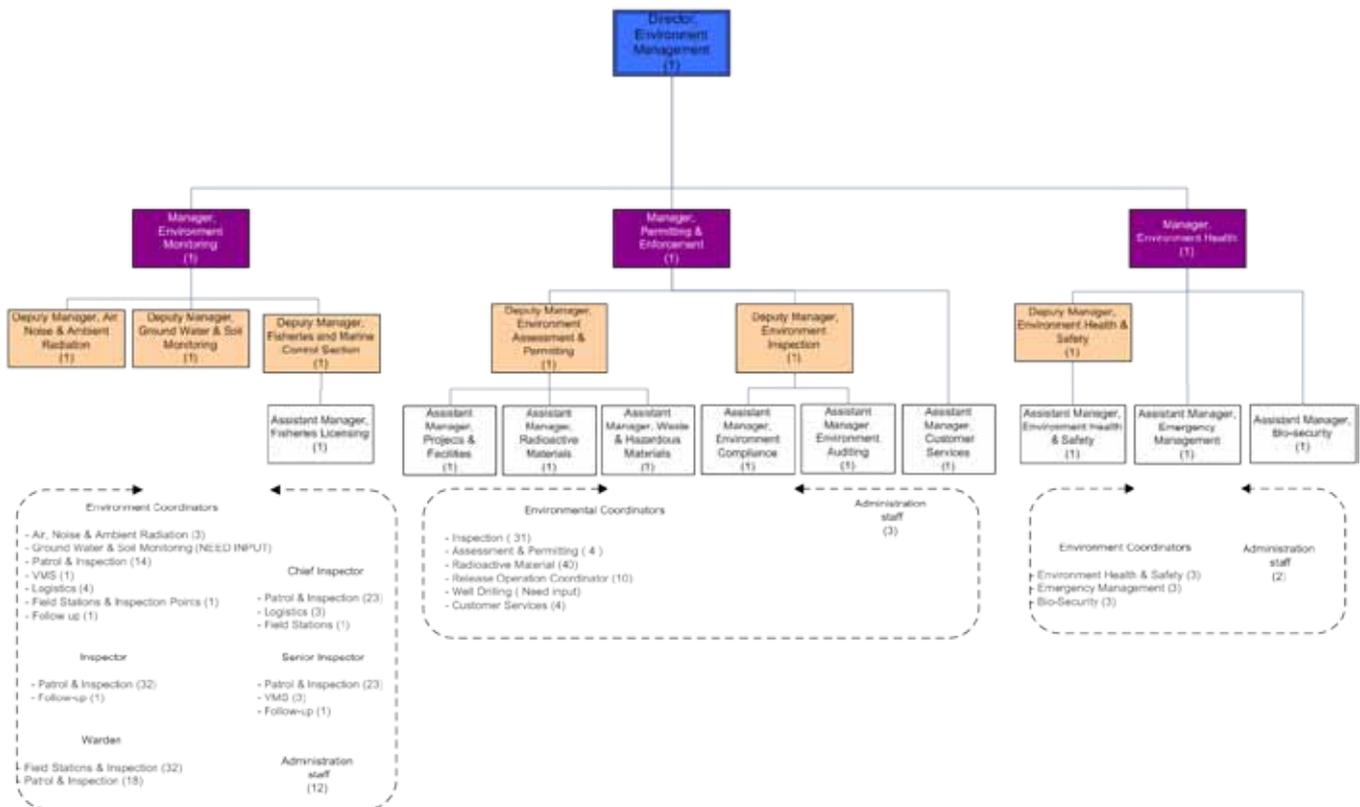


Figure 3: Pools of Experts and Environmental Coordinators in EAD

In effect, the layers of management has been collapsed to effectively two and the concept of experts pool (i.e. environmental coordinators) has been introduced as depicted in Figure 3 below. The pool will host versatile experts in different areas with the intention of creating an universal employee through predefined rotation systems that expose all employees to the different functions of the Agency and build their capacity to deliver advice in different fields.

6.2 Policy Sector

6.2.1 Mission Statement

The Environmental Policy Function contributes to national environmental policy reform through analysis and support for the implementation of existing policies, formulation of innovative solutions and integration of environmental concerns into sectoral policies. It provides technical assistance and support to national and local governments and other environmental stakeholders in order to strengthen their institutional capacities.

6.2.2 Objectives

- Develop environmental policies for Abu Dhabi and ensure synergy in different sectors.

- Further develop Abu Dhabi Strategy for Environmental Policies.
- Develop action plans and milestones.
- Review and enhance environmental standards and limits.
- Review and improve the Technical Guidance Documents.
- Develop an Environmental Performance Index.
- Issue Sustainability Report.
- Develop EAD Policies.

6.2.3 Main Functions

- Environmental Management and Protection Policy
 - Environmental Systems Policy (Air, Water, Land, Climate Change, Environment Health and Safety, EMS, ISO14000s, etc)
 - Sector Environmental Policy (Power, Transport, Oil & Gas, Renewable Resources)
- Natural Resources Policy
 - Natural Resources Policy (Marine, Groundwater, Terrestrial, Avian and Birds)
- Assessment and Audit Policy
 - Assessment and Emerging Issues
 - Sector Auditing

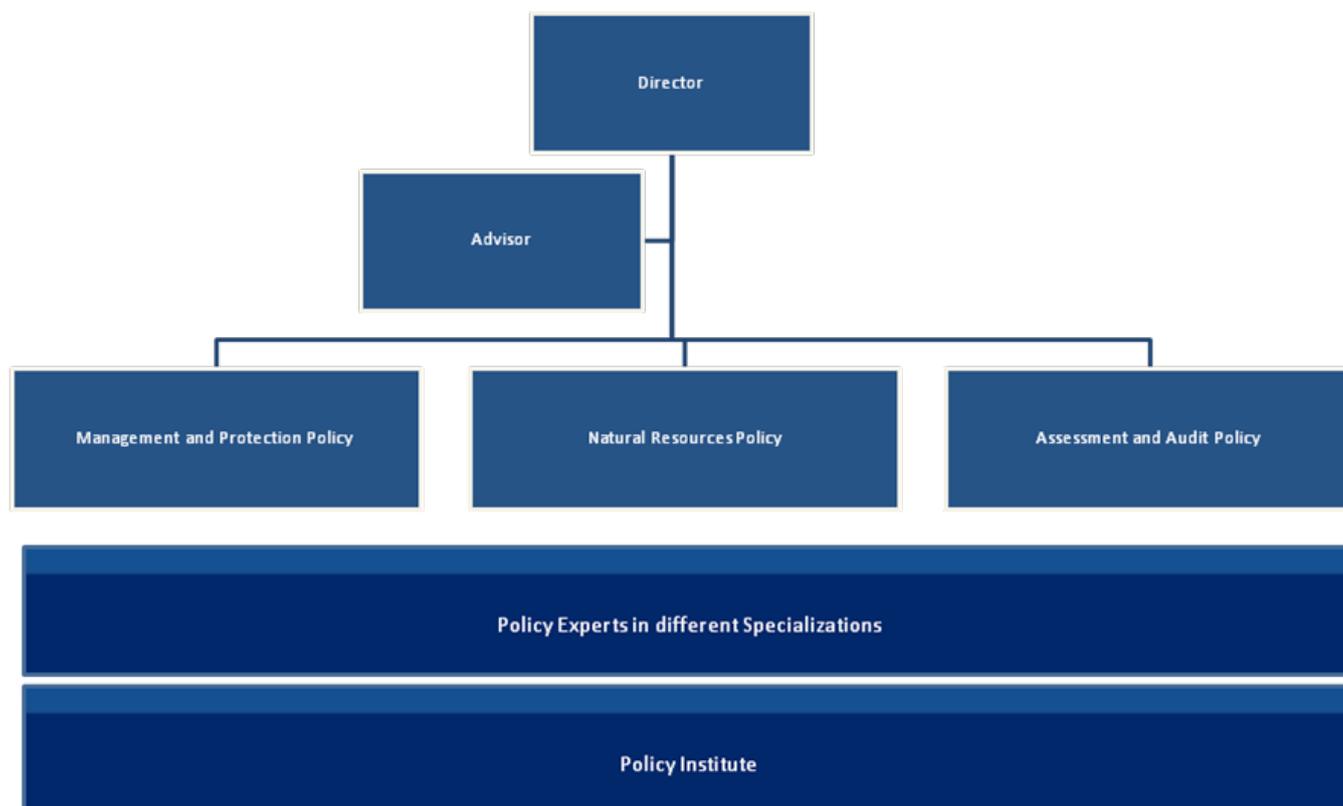


Figure 4: Environmental Policy Sector in EAD

6.2.4 Functions

- Primarily responsible for initiating policy frameworks, environmental policies, legislations and regulatory systems on a wide range of topics for sustainable development within the Emirate for the areas identified in the EAD Strategic Plan 2008-2012.
- Contribute to the accomplishment of the objective of the Sustainable Development Strategy of Abu Dhabi Emirate.
- Overall responsibility for ensuring that EAD considers the environmental aspects of development in different sectors contributes to Sustainable Development principles.
- Provide advisory services to the Agency in different fields of policy settings and enforcement.
- Intra-Agency policy and methods development.
- Evaluate the integration of environmental policies into other governmental parties and evaluates the policies of other relevant sectors (e.g. transport, agriculture, industry) from the point of view of environmental impact.
- Promote better understanding of environmental policies through documentation and public campaigns.
- Provide continuous evaluation of the EAD and Abu Dhabi Environmental Policies.
- Formulate and update EAD Policy and contribute to Abu Dhabi Environmental Policy updates.
- Evaluate the accomplishment of environmental policies.
- Cooperate on environmental legislation, ensuring adequate legal/regulatory coverage for all priority areas linked to relevant sustainability principles covering the key areas.
- Propose, develop and update environmental legislations, standards, procedures and accountabilities that address the local conditions and fulfil federal and international conventions and obligations.
- Work with heads of other sectors / functions to seek input into development of new management policy and regulation guidelines.
- Liaison with key stakeholders to ensure understanding of policy requirements and roles and responsibilities.
- Commission scientific and other research and development in support of policy and assimilate R&D for basing future policy.
- Put forward environment policy recommendations to higher authorities for legislative approvals

6.2.5 Mechanism for Policy Development

For the purpose of developing policies to deal with key environmental areas in Abu Dhabi Emirate, EAD prepares a proposal as per the Executive Council Format detailing the following: a) relationship to EAD strategic plan, b) impacts, b) recommendations, c) action plan and time frame, d) rational, e) risks, f) environmental, economic and social impacts. The proposal will also list concerned parties involved and their expected roles and responsibilities. The Executive Committee of the Executive Council issues a Decree for establishment of a committee after thorough revision of the proposal. The Decree includes a list of concerned parties and their roles and responsibilities.

The chairman of the committee communicates with the parties listed in the Decree to nominate their representatives. The committee supervises the setting of the relevant policy and may establish technical committees to develop the policy.

In 2007, a decree was issued for the establishment of the EHS Higher Committee which is responsible for setting the policies for the implementation of the Environment, Health and Safety in the Emirate. Another decree was issued concerning the establishment of a Higher Committee for improvement of waste management in Abu Dhabi Emirate which is supervising the setting of policy and strategy for waste management. In 2008, a Decree was issued for setting the policy for Integrated Management of Coastal Areas.

6.3 Strategy Management Sector

Strategy Management Sector (SMS) functions and acts in an advisory capacity to the EAD management and line functions. The sector assists the Sector Heads and the Management Team on all matters to do with organisational development to deliver the EAD strategy.

The Strategy Management Sector role involves taking steps on a continuous basis to narrow the gap between EAD's vision of what it aspires to be and do over the long run and its current situation (its programs, services, resources, reputation, relationships).

The strategic and business planning department is responsible for leading the EAD strategic and entity planning process and delivering the plans with all supporting schedules, in line with Government themes, legislation and directives as directed by the Executive Council. Its role is to facilitate strategies that position EAD to achieve its vision and mission. As such the strategic planning department is mainly concerned with external factors that position the agency with reference to the law, customers,

partners, stakeholders and peer organisations. To ensure consistency and clarity of policy and strategy, the function incorporates a stakeholder relations unit that will deal with major stakeholders on policy issues.

The business planning process follows the strategic and entity planning process. It takes the entity strategic plan as input and converts it into a one-year operating plan for the coming year, which forms the basis for the annual budget. Many of the principles applied to strategic planning, Project Portfolio Management (PPM) and Project Management (PM), also apply to business planning and need to be seen in a similar context.

The Program and Project Management (PMO) methodology is to provide guidance for program and project managers on the requirements for successful management of the work and services provided via programs/projects across EAD. This method has been designed to deal with complex projects in a systematic manner. For the purposes of this document a program is defined as a set of interrelated projects that serve a common higher level objective, thus forming a cohesive entity. The underlying principles applying to programs and projects are essentially the same and so for the purposes of this document we will refer only to projects.

The PMO method is a guide through the creation and execution of project management processes that enable the project manager to more effectively manage the uncertainty and change that are part of every project. The method clarifies the work involved in project management and provides guidance on the necessary activities therein. It must be seen within the context of the organization's strategy which will provide the focus for the projects.

The principle role of the PMO is to approve, support, track and report on the status of projects as part of overarching programs, e.g. transformation, within the performance management framework. PMO supports continuous performance improvement and, as such, the team should benchmark the Authority against International Best Practice, identify areas for improvement, and recommend solutions. It works closely with all other departments within SMS: strategic planning to ensure the program stays aligned during execution; business planning to ensure short term targets are correctly planned and achieved; PMO to ensure projects deliver on time; and budget and performance management to ensure experiential learning is captured and incorporated into the continuous improvement process.

The Performance Management Department has a holistic process, bringing together many of the elements which make up the successful practice of people management including, in particular, learning and development. The

process has many facets including target selection, target setting, planning, implementation, monitoring, reviewing, analysing and learning, all in a structured and integrated performance management framework.

The role of the Performance Department is to lead in the design, implementation and on-going delivery of a performance based system that supports and measures continuous performance improvement; the team uses benchmarks to measure the Authority against International Best Practice, identify areas for improvement and recommend solutions. The performance management department primarily focuses on the internal capabilities within EAD and works closely with the strategic planning unit to understand how internal capabilities relate to the achievement of environmental goals and partnership strategies. EAD is in the process of developing a set of Balanced Scorecards which will be cascaded down from the corporate level to lower organizational levels and which will integrate with the HR Performance Management process for individuals.

An initial Scorecard was developed in 2006 but it was not institutionalized. To ensure success this time, EAD has hired a Manager for the Performance Management Department who is proficient in developing a BSC and who will start on 16 October 2008. The target is to have draft corporate BSC approved by the EMC by the end of 2008.

6.3.1 New Management Approach

Abu Dhabi governance framework is already changing to meet the goal of a 'developed nation'. The leadership is pushing toward decentralization of governmental roles. The government is also opening avenues for public participation. This is evident in the creation of the Ministry for Federal National Council Affairs whose first mission was to introduce a more participatory process to the Federal National Council. With the dissolution of the Ministry of Information, the role of media is to cope with developments on the international level. Civil duty is being recognized at the highest of levels with the introduction of the high profile accolade, the "Abu Dhabi Award", which publicly honoured, for the first time, the community work of the individual. Decentralization and the opening avenue for public participation would mean that one governmental body will not be a one for-all body; it is clear that responsibilities will be shared in the near future. Private sector partnership and non-governmental organizations (NGOs) are also being encouraged. This is quite evident with the creation of the Emirates Foundation—an endowment fund created through a private-public partnership to promote civil development in the areas of environment and society, research and development, technology, education and culture.

Along the same lines, EAD engaged in outsourcing a few of its operational activities; namely, air quality and noise activities as well as environmental protection activities. Air quality and noise activities have been outsourced to an internationally recognized Norwegian non-profit institute with over 30 years of experience in the field for the next five years, ending in 2013. This is an interim phase while building a state of the art institute aimed at becoming the reference centre in this field for the whole region. Several tasks have been identified including an Emiratization goal of recruiting and training 25 to 50% of nationals in the duration of the partnership, establishing a dedicated website for the air quality in the emirate, and setting policies for air and climate change issues. Similarly, a strategic partnership was initiated in mid-2008 with a well-known American institute that has been serving as advisors for the American Environment Protection Agency (EPA) since the late sixties of the last century. The partnership is set to last for the next ten years and is anticipated to revolutionize the environment protection in the emirate and, indeed, in the country. Main focus areas include industrial risk assessment of all medium and major industries in the emirate, improvements in the permitting system and consultants office registrations, continued implementation of the Environment, Health and Safety (EHS) program emirate wide, and recruiting / training of nationals to ultimately comprise 80% of the assigned staff by the end of the contractual period.

The Environment, Health and Safety (EHS) program is aimed at protecting and conserving the environment, and promoting human health and safety for all inhabitants of the Emirate. In order to achieve this commitment, Executive Council approved Abu Dhabi Environment, Health and Safety (EHS) Policy on 6 December 2006 (*Committee Decree 2-Session 31/2006*) and nominated the Environment Agency–Abu Dhabi (EAD) as the Authority responsible for supervising the implementation of the Environment, Health and Safety Management System (EHSMS) at Abu Dhabi Emirate level in cooperation and coordination with all concerned parties.

The objective of the policy is to achieve excellence in the management and protection of the environment and ensuring health and safety of the public and workers, through partnership between all government and private sectors to ensure activities within Abu Dhabi Emirate are undertaken in a responsible, safe and sustainable manner. According to the policy, every person living and contributing to the lifestyle enjoyed in the emirate is encouraged to participate in improving the environment, health and safety conditions for the benefit of current and future generations. The program is detailed in the next chapter.

7 Abu Dhabi Emirate Environment, Health and Safety Management System (EHSMS)

نظام إدارة البيئة
والصحة والسلامة لإمارة أبوظبي

Abu Dhabi Emirate Environment,
Health & Safety Management System

7.1 Abu Dhabi Emirate EHSMS Framework

To ensure consistent application of the EHS Policy across the Emirate and to encourage entities within different sectors to become self-regulating, an EHSMS framework has been developed for Abu Dhabi Emirate.

EHSMS is an approach that recognizes the inter-relationships between workers, the community, all development activities, and the environment in contributing to diverse risks. It is an integrated system that takes into consideration all aspects related to protection of the environment, protection of human health, and safety of workers and the community at large.

The ultimate objective of this system is to minimize hazards and risks to the environment, and the health and safety of workers and the community; and to make continual progress towards sustainable development.

The full implementation of the system across the Emirate will be completed by 2012. EAD developed the EHSMS in consultation with all concerned parties at Emirate and Federal level.

7.2 EHSMS Committees

7.2.1 EHS Higher Committee

To follow up the development and implementation of Abu Dhabi Emirate EHSMS Framework, the Executive Council established an “EHS Higher Committee” by a Decree issued on 11 June 2007. The committee is chaired by EAD and comprises members from (1) Ministry of Health, (2) Ministry of Labour, (3) Federal Environmental Agency, (4) Department of Transport – Abu Dhabi, (5) Environment Agency-Abu Dhabi, (6) Abu Dhabi Food Control Authority, (7) Abu Dhabi Tourism Authority, (8) Supreme Petroleum Council – Abu Dhabi, (9) Abu Dhabi Health Authority, (10) Abu Dhabi Water and Electricity Authority, (11) Abu Dhabi Municipality, (12) Al Ain Municipality, and (13) Higher Corporation for Specialized Economic Zones – Abu Dhabi.

The Higher Committee is responsible for supervising the implementation of the EHSMS in cooperation with the Competent Authority (EAD) and the Regulatory Authorities (Authorities responsible for sectors). Specifically the committee will be responsible for approving the EHSMS framework, the list of targeted entities, the mechanism for implementation, the mechanism for approval of EHSMS developed by sectors/entities and the mechanism for reporting and registration of auditors. The committee will also approve the EHS standards which are not part of applicable laws as well as the reports submitted to the Executive Council on EHSMS performance.

7.2.2 EHS Sector Technical Committees:

In order to facilitate the implementation of the EHSMS framework across the Emirate, the Higher Committee established seven “Sector Technical Committees” chaired by the members of the Higher Committee representing each of the following sectors: Building and Construction, Oil and Gas, Health, Industry, Tourism, Transport, and Energy. Sector Technical Committees include members from all concerned parties.

Annex 1 covers in more details the EHS Committees, Administration, Codes of Practice, Sector Guidelines and Manual.

7.2.3 EHSMS Administration:

The development of the EHSMS Framework has been undertaken with the aim of encouraging individual entities to be responsible for compliance with relevant

environment, health, and safety legislation. The EHSMS Framework clearly defines responsibilities for entities and government through Codes of Practice and encourages self-regulation. This ultimately minimises the role of government in administration and coordination activities.

During implementation of Abu Dhabi EHSMS framework, two levels of administration will be required; at Emirate level, and at Sector level. See Annex II – EHSMS Administration.

EHSMS Responsible Authorities

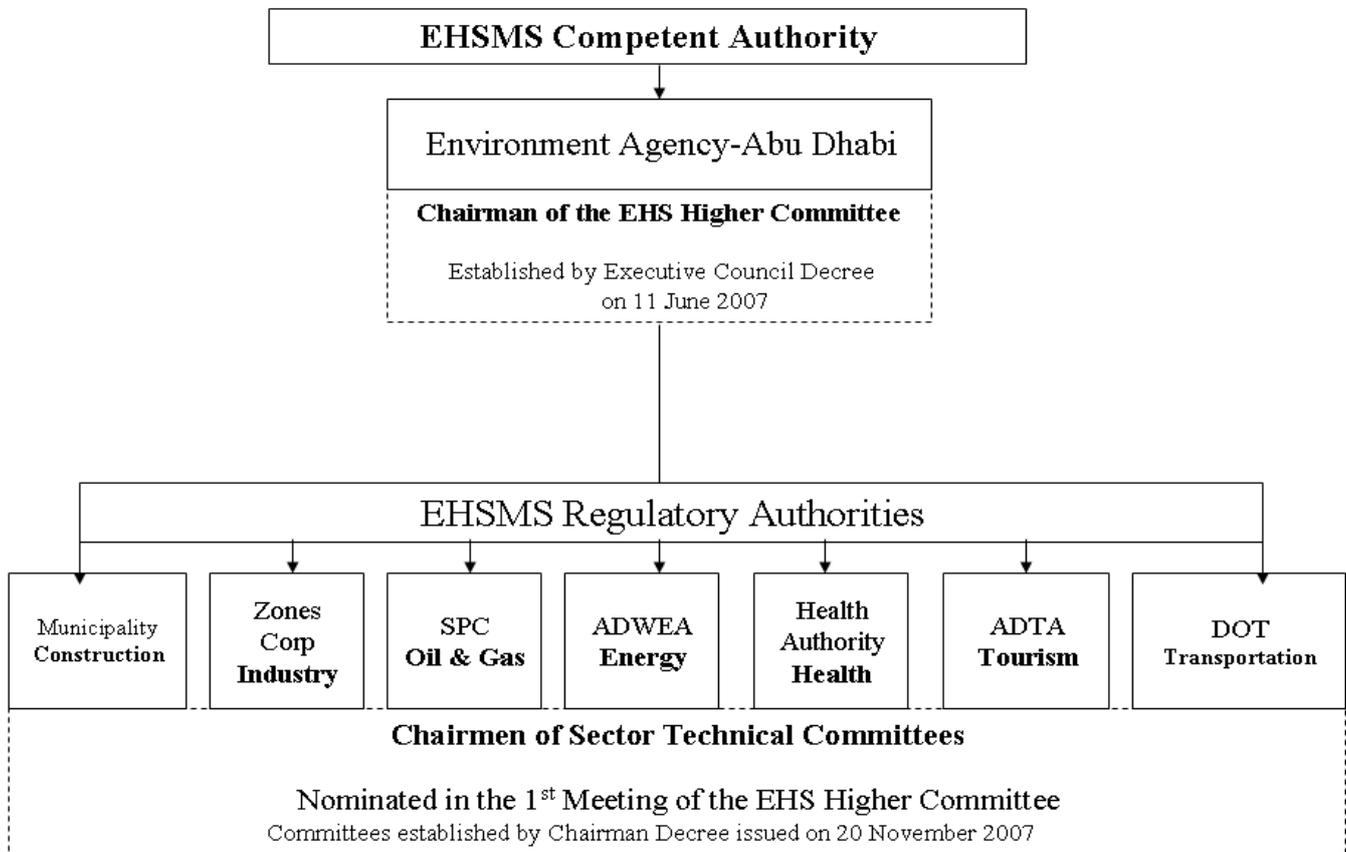


Figure 5: EHSMS Responsible Authorities

7.3 EHSMS Documentation:

The EHSMS Framework consists of a hierarchy of documents designed to inform and facilitate the development, implementation and compliance of EHSMS, these include:

1. The **EHSMS Law** (not issued yet) will form the mandate for the EHSMS initiative.
2. The **EHS Policy** was approved by the Executive Council on 6 December 2006, which outlines the goals, objectives and principles to be adopted when developing an EHSMS.
3. THE **EHS Framework Codes of Practice** that communicate the 6 principal codes (or elements) to be met when developing an EHSMS.
4. **The Environment, Health and Safety Protection Policies (EPPs)** to be followed when implementing EHSMS.

These documents specify the EHS Policy requirements and supporting information required for implementation of Abu Dhabi EHSMS by all sectors and entities in Abu Dhabi Emirate.

7.3.1 The EHSMS Law

This Law, which is still in draft form, aims to implement the Environment, Health and Safety Management System in the Emirate through provision of a unified tool at Emirate level to facilitate implementation of laws relevant to environment, health and safety and for protection of human health and safety and the environment and conservation of natural resources. The EHSMS Law was revised by the sector technical committees and the final version was approved and submitted to the Executive Council in May 2008.

7.3.2 The EHS Policy

The EHS Policy was issued on 6 December 2006. The main goals of the EHS policy are: (i) implementation of EHS management systems in all sectors, (ii) compliance with EHS systems, (iii) minimization of hazards and risks to the environment and to the health and safety, and (iv) continual progress.

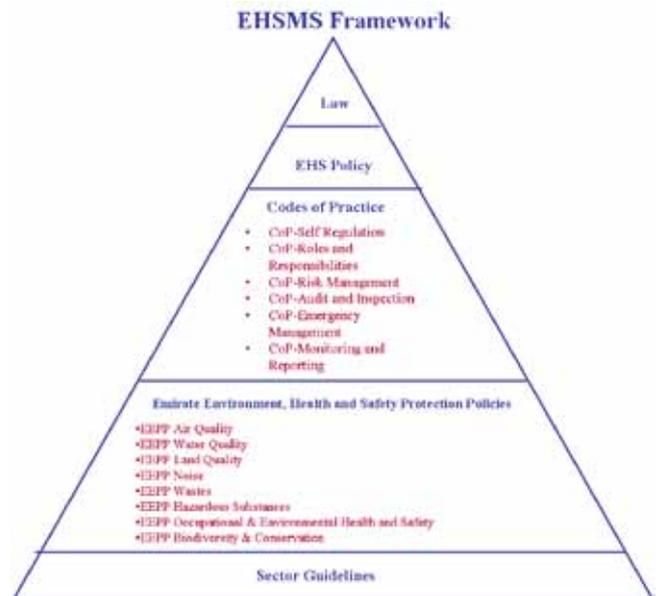


Figure 6: Hierarchy of EHS Documents

7.3.3 Framework Codes of Practice (CoPs)

Six Framework Codes of Practice (CoPs) have been developed to define the specific requirements to be met by sectors and entities when developing EHSMS:

- CoP for Self-Regulation
- CoP for Roles and Responsibilities
- CoP for Risk Management
- CoP for Audit and Inspection
- CoP for Emergency Management
- CoP for Monitoring and Reporting

The Framework CoPs therefore provide the basis against which a sector or entity EHSMS can be audited for compliance with the government objectives.

7.3.4 Emirate Environment, Health and Safety Policies (EPPs)

The Emirate Environment, Health and Safety Protection Policies (EPPs) provide further details on what standards and quality indicators are to be taken into consideration for different elements and aspects of the EHSMS including air, water, land, noise, wastes, hazardous materials, biodiversity and conservation, and occupational and environmental health and safety.

7.3.5 Sector EHSMS Guidelines

Sector EHSMS Guidelines exist for each of the seven sectors with specific advice for the development and implementation of EHSMS within each sector. Technical guidelines and information bulletins provide detailed advice of how operations and activities are to be undertaken to ensure compliance with an EHSMS and therefore with the EHS Framework.

7.4 Independence of Abu Dhabi EHSMS Framework

7.4.1 Overview

The EHSMS Law (Draft), EHS Policy, Framework CoPs, EPPPs, and sector EHSMS Guidelines developed under the Abu Dhabi EHSMS Framework describe the goals, objectives and general requirements needed by the sectors and their entities to develop and implement an EHSMS that meets Abu Dhabi EHSMS Framework requirements.

A sector or entity that develops an EHSMS based on the specific requirements outlined in the six CoPs will comply with the EHSMS framework. To assist sectors and entities, Abu Dhabi EHSMS requirements as outlined in the Framework CoPs constitute all major elements of a self-regulating management framework. It therefore allows sectors and entities to develop a stand-alone management system based entirely on Abu Dhabi EHSMS Framework. It also allows sectors and entities to have the flexibility to incorporate these requirements into existing management systems.

Abu Dhabi EHSMS Framework can be implemented independently without referring to other international management systems. It neither intends to replace relevant international standards (e.g., ISO 14001, OHSAS 18001) nor relies on the international standards. Establishing an EHSMS based only on Abu Dhabi EHSMS Framework or fine-tuning a management system based on ISO 14001 and OHSAS 18001 management standards with incorporation of Abu Dhabi specific requirements can meet Abu Dhabi Emirate requirements for EHSMS. The relationship between Abu Dhabi EHSMS and these standards are described in the EHSMS Guideline “Comparison with International Management Systems Standards”, included in Annex 3.

7.5 Comparison with International Systems Standards

In general, all entities must complete the following to comply with the Abu Dhabi EHSMS requirements:

- Develop a policy that demonstrates the entity is committed to EHSMS and self-regulation;
- Develop a new code of practice (or similar) describing how the entity is to achieve self-regulation;
- Develop a new code of practice (or similar) describing the process for external reporting of compliance with the relevant environment, health and safety law identified in the EHSMS.

If the entity has an ISO 14001 Certified system then the entity will also need to:

- Update all procedures and documents to include health and safety

If the entity has an OHSAS 18001 Certified system then the entity will also need to:

- Update all procedures and documents to include environment

If the entity has an ISO 9000 Certified system then the entity will also need to:

- Develop a new EHS management system that is supported by the quality system

7.5.1 Key Challenges:

1. One of the main issues that emerged during development of the system is with Supreme Petroleum Council who objected to compliance with key aspects of the EHSMS system due to the fact that the ADNOC group of companies implements the EHSMS according to international standards and reports directly to the Executive Council. In order to resolve the current situation with SPC, the issue was raised to the Executive Council for final decision.
2. Some sectors may require more time than stated in the timeframe (2009) to develop their sector EHSMS.
3. Availability of EHS Auditors at the Emirate level compared to demand.
4. The need for an integrated system to facilitate management of relevant data at sector level and Emirate level and to facilitate reporting to the EC.

7.5.2 The Way Forward:

- Completing train-the-trainers workshop for sectors by end of 1st quarter 2009.
- Completing training workshops and train-the-trainers workshops for EAD staff by end of 1st quarter of 2009.
- Setting the functional requirements for the Environment Health Department at EAD in order to supervise the implementation of the EHSMS at Emirate level.
- Approval of the EHSMS developed by the seven sectors during 2009.
- Registration and approval of the EHSMS developed by targeted entities starting end of 2009-early 2010.
- Implementation of the EHSMS by 50% of entities by end of 2010 and 100% by 2012.
- Annual auditing of the systems implemented by sectors and entities.
- Reporting to the Executive Council on the performance of the EHSMS.

8 Sector Policies



8.1 Air Quality

Council of Ministers Decisions No.12/2006 regarding Regulation Concerning Protection of Air from Pollution, issued in May 2006, acts as an executive bylaw to the law 24 / 1999 and includes provisions for ambient air quality and noise limits.

EAD during years 2006 and 2007 purchased, installed, commissioned, and currently operates 10 fixed air quality monitoring stations in Abu Dhabi Emirate and 2 mobile stations supported by a central database and data acquisition station as depicted in Figure (7). The stations are operating in accordance with best international practice and a work plan developed for monitoring the levels of air quality in locations across the emirate. The central processing station, linking all stations at various sites, was commissioned and reports daily on the status. Instrument and follow-up on pollution readings from the station are received and compared with set standards. Emission databases and mathematical modelling sit in the heart of the whole process and deliver the state of the air quality and provide for scenario settings and future projections.

In line with the Abu Dhabi Emirate's direction that seeks enhancement of partnerships between Government and private sector entities, EAD, effective January 2008, outsourced its air quality and noise activities for the next five years to an internationally recognized Norwegian non-profit institute with over 30 years of experience in the field. This is an interim phase while building a state of the art institute aimed at becoming the reference center in this field in the entire region.

Improving air quality is a priority area in EAD five-year strategy as captioned in Table 2 below.

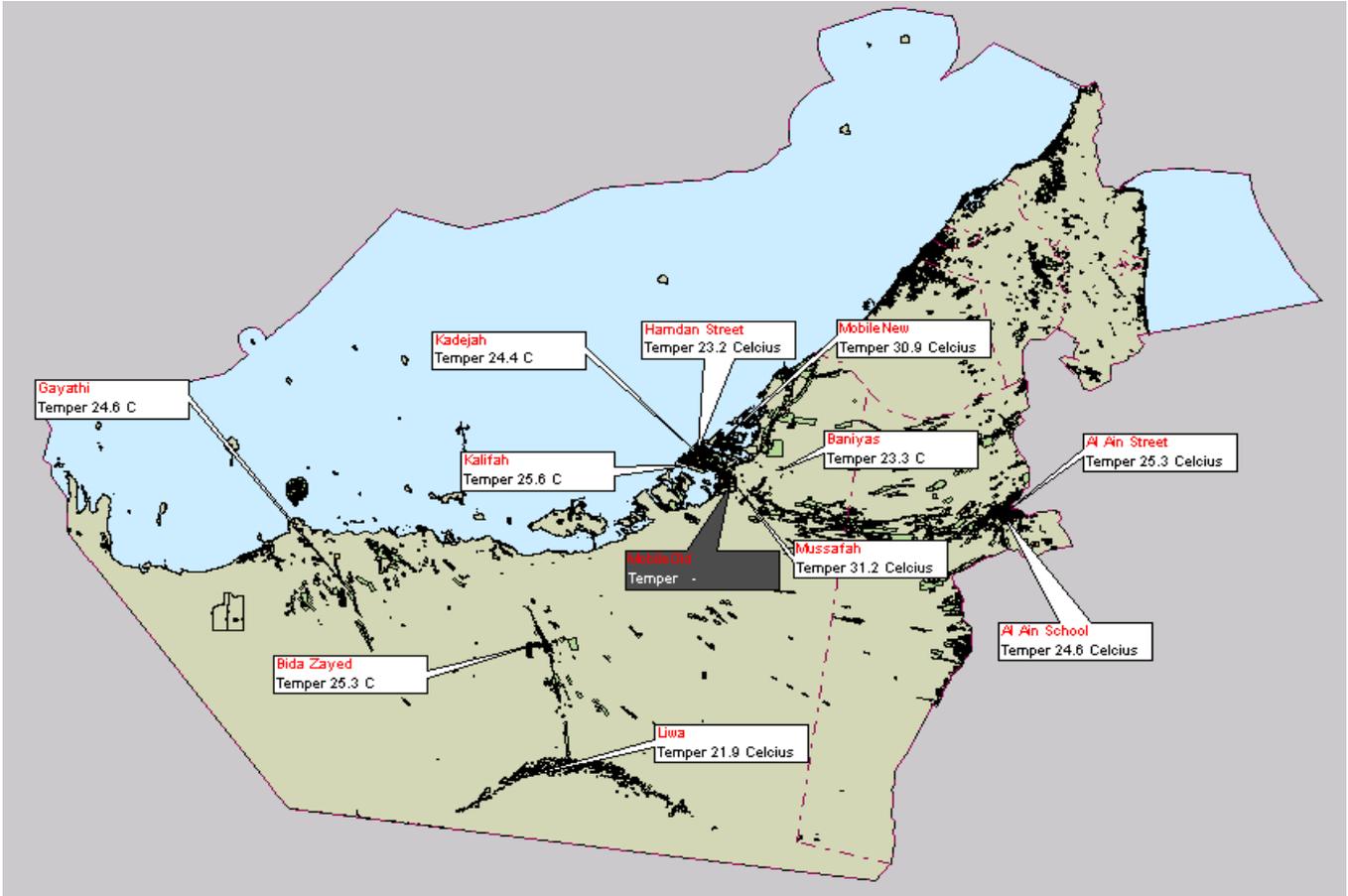


Figure 7: Air Quality Station Network

8.1.1 Compressed Natural Gas (CNG)

A policy and strategy for utilization of natural gas as fuel in Abu Dhabi Emirate and action plan was developed and published.

8.1.1.1 Strategic Goals

1. By year end 2012, 20% of the most polluting vehicles in Abu Dhabi will use CNG as an alternative fuel in their vehicles. The most polluting transportation fleets were identified as taxis, training vehicles and government cars.
2. Development of standards and limits for CNG related operations on the Federal level. This includes the composition of the CNG, the conversion operations, emissions from CNG vehicles and the administrative requirements for operating a workshop.
3. Provision of CNG as a strategic fuel and reserve
4. Introduction of financial incentives to encourage the conversion to CNG as alternative fuel through encouraging competition, ensuring that the price of CNG is always lower than the price of Gasoline by at least 30-35%, lowering the insurance premiums of vehicles with cleaner fuels and removing the customs tax.
5. Increase the public awareness about the benefits of the CNG and the impact of their and their children's' health. This will be done through continuous press releases and educational programs as well as seminars and workshops.
6. Monitoring and enforcement for all concerned parties to work diligently toward the achieving of these goals.

Table 2: Improve Air Quality Priority Area

Priority	Improve Air Quality
Target Statement	Ensure an average of 70% compliance with Air Quality Standards listed in the Council of Ministers Decree No 12/2006 by the year 2013.
Key Performance Indicators (KPI)	<p>Air Quality Levels – PM₁₀</p> <p>70% compliance by 2013</p> <p>Air Quality Levels – SO₂, NO₂, O₃ and CO</p> <p>100% compliance by 2013</p> <p>Increase % of cars transferred to CNG</p> <p>20% polluting cars converted</p> <p>Increase % usage of cleaner Diesel</p> <p>Cleaner Diesel containing sulfur less than 500ppm is used in all transport and industry.</p>

Abu Dhabi Executive Council issued decree (Number 9 – Meeting 13/2007) approving the strategy for using Compressed Natural Gas (CNG) as an Alternative Fuel in Abu Dhabi Emirate in April 2007. In March 2005, Abu Dhabi Executive Council issued decree (Number 6 – Meeting 12/2005) pertaining to the formation of a permanent technical committee to follow up implementation of use of natural gas as fuel for vehicles in Abu Dhabi Emirate. This decision was later superseded by decree (Number 36 – Meeting 3/2008) in February 2008 that broadened the role of the committee and renamed as “Abu Dhabi Air Quality Committee”.

Council of Ministers Decision No.8/2006, issued in April 2008, has endorsed 22 different standards related to all equipment and materials used in the conversion of vehicles and specifications for UAE with effective implementation starting mid 2008.

8.1.2 Ultra Low Sulfur Diesel (ULSD)

ULSD is a concept adopted in UAE in several forms:

1. Executive bylaw for the protection of air from pollution passed on 1 May 2006 states in Article (4) that all diesel fuel must ultimately reach 10 part per million (aka green diesel) and directs all involved parties of developing strategies and action plans to achieve this goal.
2. Council of Ministers Decree (34)/2006 stating the replacement of current diesel fuel, containing 2500 parts per million of sulfur, into a cleaner 500 ppm of sulfur starting July 2007.

3. Policy and Action Plan endorsed by Abu Dhabi Executive Council to achieve the following goals:

500 ppm diesel by 2007

10 ppm diesel by 2012

4. Formulation of a Steering Committee to oversee the implementation of the plan. The Committee is headed by Environment Agency – Abu Dhabi and the membership of Federal Environment Agency, Emirates Metrology and Standardization Agency, ADNOC Distribution, TAKREER, Transportation Department and Police Headquarters. This formulation was later superseded by decree (Number 36 – Meeting 3/2008) in February 2008 that broadened the role of the committee and renamed as “Abu Dhabi Air Quality Committee”.

A new product (Diesel 500 ppm) was introduced into the local markets on 23 July 2007, which was named Green Diesel, in compliance with the approved work plan and in line with the Council of Ministers Decree No. (34) / 2006.

8.1.3 Quarries

EAD assisted a Federal Technical Committee responsible for setting a proposal for regulating activities of stone quarries and crushers for submission to the Council of Ministers. Council of ministers Decision Number 20/2008 regarding regulating activities of quarries and crushers and transport of its products was approved and published May 2008.

8.2 Radiations

Federal Law No. (20) of 2006 is an amendment to some provisions of Federal Law No. (1) of 2002 regarding the regulation and control of the use of radiation sources and protection against their Hazards. Tasks pertain to ensure this law's implementation was transferred from the UAE Ministry of Energy to the Federal Environment Agency which is currently a part of the UAE Ministry of Environment and Water. EAD is the competent authority in Abu Dhabi Emirate level responsible for implementation of this law.

The amendments to the law did not affect any of the existing radiation related regulations issued previously by the radiation protection and control department of the UAE Ministry of Energy; specifically:

- Basic regulations for protection Against Ionizing Radiation
- Regulations for Radioactive Waste Management
- Regulations for safe Transport of Radioactive Materials

As the competent Authority, EAD started at the end of 2005 to build its capacity in this area through evaluating all establishments and corporations conducting radioactive activities, and dealing with sources in Abu Dhabi Emirate as well as radioactive source storage areas, and undertaking of all corrective actions. EAD has also developed guidance documents (e.g. Well Logging, Norms, Radiography, etc.) in accordance with the International Atomic Energy Agency. Guidance documents were provided to concerned parties in the Emirate and UAE for their concurrence.

EAD is a member of the Radiation Prevention Committee at the federal level which was established via Ministry of Environment and Water Ministerial Decree No. 7 / 2007. This federal committee is established to implement tasks specified in Article 4 of Federal Law No. (1) of 2002 regarding the regulation and control of the use of radiation sources and protection against their Hazards.

Based on EAD inspections, and monitoring of Abu Dhabi industrial area radioactive relevant practices in the past number of years, EAD proposed to the AD executive council the establishment of a Radiation Monitoring Unit within EAD. This was approved via AD Executive Council decree (Number 11 – Meeting 1/2008) and was issued in January 2008. The agency is currently working toward development of the Unit. The agency is also participating and coordinating with the ministry of Interior and Armed forces toward development of an early warning system for nuclear radiations for the UAE as part of dealing with such threats under Crises Management.

8.3 Climate Change

The main outcomes from the first national communication report to the UNFCCC are captured hereafter:

1. The UAE compiled its first-ever inventory of greenhouse gas emissions for the year 1994.
2. Net carbon dioxide-equivalent emissions for 1994 amounted to 74,436 Gg.
3. The main gas emitted is carbon dioxide (60,246 Gg), which constitutes more the 81% of net CO₂-equivalent emissions.
4. Energy production and consumption is the dominant source of GHG emissions in the UAE.
5. Energy-related CO₂ emissions from fossil fuel production and combustion are 60,246 Gg – about 95% of the CO₂ emission total. The energy sector also emits the overwhelming share of all other GHGs such as methane and nitrous oxide. When combined with these other emissions, the energy sector accounts for about 95% of the CO₂-equivalent total.
6. Industrial processes account for about 4% of CO₂-equivalent emissions, almost all of it in the form of carbon dioxide.
7. Waste management activities account for about 3% of CO₂-equivalent emissions, virtually all of it in the form of methane.
8. Agricultural production accounts for about 2% of overall CO₂-equivalent emissions.

Developing Climate Change Framework is a priority area in EAD's five-year strategy and the set targets are in table (3) below.

Table 3: Develop Climate Change Framework Priority Area

Priority	Develop Climate Change Framework
Target Statement	Develop and implement Climate Change Framework by 2013
Key Performance Indicators (KPIs)	Policy endorsement
	Track CDM projects
	UAE 2 nd National Communication
	Build capability to Greenhouse Gas emission inventory

Abu Dhabi Future Energy Company (MASDAR), established by Local Law No. (22) of 2007, was appointed

for 5 months to prepare / develop a CDM implementation strategy at UAE level, set the sustainable development criteria, and establishes a website for the higher committee and the executive committee.

Also, an agreement was signed with Stockholm Institute for Environment in the United States to undergo a study on the economic, social, health and environmental impacts of climate change and reduction of emissions.

8.4 Waste Management

To ensure the improvement of means for collection, transportation, treatment, and disposal of solid waste in Greater Abu Dhabi and the Western Zone of Abu Dhabi Emirate, Executive Council decree (Decision Number 21 – Meeting 4/2005) was issued in March 2005. A committee was formed to execute the decree including members from the municipalities and the environment agency. The committee cooperated closely with an international expert on the matter as well as with Mubadala Development. As a result of such effort, a Master Plan for Waste Management in Abu Dhabi was developed addressing management of medical, industrial, municipal and solid waste streams. Accordingly, the Environment Agency proposed an implementation plan for waste management strategy in Abu Dhabi.

Law No. 21 (2005) for Managing Wastes in Abu Dhabi Emirate designates EAD as the competent authority responsible for regulating and monitoring of wastes management in the Emirate, and ensuring that all concerned parties (governmental and private) comply with the environmental laws and regulations related to waste management (collection, transportation, storage, treatment and disposal of waste).

This is a significant addition of responsibility for EAD, yet it enhances its ability towards the development of integrated solutions for the environmentally sound management of wastes. It also allows for the involvement of other governmental agencies and industry in the collective responsibility for the establishment of more efficient, environmentally sound waste management systems that are acceptable from the health and social aspects. The law also allows for setting up regulations for the management of medical, industrial and hazardous wastes and municipal waste and other by products of waste management facilities.

To ensure the implementation of Law No. 21, improve waste management, as well as the waste management strategic proposal, A Higher Committee for waste management in Abu Dhabi Emirate was formulated via Abu Dhabi Executive Council Decree (Number 11 – Meeting 15/2007) issued in May 2007.

The committee prepared a proposal for establishment of Abu Dhabi Waste Management Centre which reports to the higher committee for waste management improvement. The proposal was approved via Abu Dhabi Executive Council decree (Number 1 – Meeting 29/2007) and issued in September 2007.

The Centre is newly established (February, 2008) and started executing its high priority tasks and projects (Phase1) in coordination with EAD as follows:

1. Develop a Waste Management Strategy.
2. Issue a tender to establish and operate Hazardous Waste Facilities.
3. Issue a tender to establish and operate C & D Waste Recycling Facilities.
4. Issue a tender to establish and operate Used Tyres Recycling Facilities.
5. Issue a tender to establish and operate Marine Waste Reception Facilities.
6. Landfill Rehabilitation Project

8.4.1 Hazardous Materials

UAE Ministry of Interior ministerial Decree Number (324)/2008 issued in May 2008 approved the formation of a special committee to assess the current situation for all chemical stores in Abu Dhabi Emirate and its compliance with safety and security standards; and in addition, provides a mechanism for corrective actions and follow up in line with the best international practices, guidance, and standards.

A permanent technical committee for monitoring of hazardous materials in Abu Dhabi Emirate chaired by EAD and members of various governmental entities was established via Abu Dhabi Executive Council decree (Number 20 – Meeting 9/2008) in April 2008. The decree assigned the committee specific tasks including among others the assessment of the current situation and recommendations and approval of permanent solutions as well as putting up plans and strategies for management and monitoring of all hazardous materials pertaining activities and ensuring the compliance with the applicable laws and regulations.

Abu Dhabi Executive Council issued decree (Number 18 – Meeting 31/2007) regarding the status of the hazardous material storage areas (stores) in Abu Dhabi Emirate.

The Cabinet or Council of ministers decree No. (39) / 2006 was issued in November 2006 to ban import, production, and use of asbestos boards in the UAE.

EAD continued Management of Hazardous and Chemical Substances by controlling release of relevant shipments at all Abu Dhabi Emirate points of entry, issuing permits, inspecting companies that deal with such substances, and coordinating with other concerned agencies in monitoring hazardous substances, such as the ongoing collaboration with the Customs Department and ADNOC Distribution to monitor oil and fuel imports to avert entry of any used material.

8.4.2 Pesticides

Executive Council Decision (No.1, meeting 44/2005) regarding the formation of technical committee for pesticides, fertilizers, seeds and veterinary drugs in Abu Dhabi Emirate was issued April 2006. The functions and delegated authorities to this technical committee were specified in the Executive Council Decision (No. 7, meeting 25/2007) which was issued August 2007. The committee is responsible among others to undertake all technical and administrative actions that regulate the use, purchase, sales and handling of pesticides, veterinary drugs, seeds and all types of fertilizers. The committee is also responsible to coordinate with all local concerned parties in conducting field surveys and studies on residual impact of these materials on plant, soil, water and animals.

Over the last two decades, a government policy for agricultural development with a goal to achieve self-sufficiency in food supplies (irrigation for agriculture now uses about 50% of all water supplies) led to an increase in the use of pesticides and chemical fertilizers for increasing agriculture production. EAD has established and is implementing a Pesticide Monitoring and Control Program. Pesticides use raises significant concern about long-term, chronic exposure from low concentrations in groundwater. A significant concern is nitrates. Therefore, EAD has been involved in an Emirate-wide survey to assess pesticide and fertilizer residues in Abu Dhabi Emirate groundwater.

As part of FEA responsibilities to assess water resources and due to the fact that pesticides and fertilizers were previously used heavily in UAE, FEA, in cooperation with the Ministry of Agriculture and Fisheries, Fujairah Municipality and the Environment Agency of Abu Dhabi, conducted a study on the residues of pesticides and fertilizers in ground water wells in UAE (mainly Persistent Organic Pesticides and Nitrates and Nitrites). This study was also part of its commitment to the Stockholm Convention on Persistent Organic Pollutants. The Environment Agency

was responsible for analysis of samples collected from Abu Dhabi Emirate to include sampling and analysis of routine ions, nitrates and phosphates and other pesticides. The study sampled 250 selected production and observation wells across the Emirate.

8.4.2.1 Specific Laws and Legislations regulating the use of Pesticides

In addition to the general laws and legislations mentioned earlier, the following list is specific to pesticide use and control:

- Federal Law No. (39) of 1992 concerning the Production, Importation and Handling of Fertilizers and Agricultural Conditioners and its Executive Order issued by Ministerial Decree No. (98) Of 1993 and its amendment No. (573) of 1998. Ministerial Decree No. (135) of 1983 concerning Organization of Imports of Organic Fertilizers.
- Federal Law No. (41) of 1992 concerning Agricultural Pesticides and its Executive Order issued by Ministerial Decree No. (97) of 1993.
- Ministerial Decrees issued by the Ministry of Agriculture and Fisheries concerning pesticides and Fertilizers:
 - Ministerial Decree No. (56) of 1984 concerning the Ban on Using or Handling or Importing some Pesticides.
 - Ministerial Decree No. (84) of 1988 concerning the Regulation of the Imports of Pesticides.
 - Ministerial Decree No. (11) of 1991 concerning the Ban on Using or Handling or Importing some Pesticides.
 - Ministerial Decree No. (23) of 1991 concerning Organization of Import of Organic Fertilizers and the Conditions for Imported or Locally Manufactured Fertilizers.
 - Ministerial Decree No. (97) of 1993 concerning the Ban on Using or Handling or Importing some Pesticides.
 - Ministerial Decree No. (5) of 2001 concerning the Ban on Using or Handling or Importing some Pesticides.
 - Ministerial Decree No. (193) of 2004 concerning Banning the imports and Circulation of some Harmful Pesticides on Health and the Environment.
 - Ministerial Decree No. (40) of 2005 concerning the Amendment of the Ministerial Decree No. (39) of 1991.

8.5 Water Resources Policies

Water resources policy formulation in the Emirates of Abu Dhabi is confronted by number of challenges which include shortage in the natural water resources, high cost of desalinated water, and environmental degradation. In spite of all these challenges water consumption in Abu Dhabi is one of the highest per capita rates including those in water rich countries such as Canada and USA. The real challenge is not only attributed to water scarcity and the limited availability of natural fresh water resources for current uses but also to the continuous rise in the demand due to population increase, flourishing economy, and rapid rise of living standards. At the same time, the governance of the water sector is weak and characterized by institutional fragmentation leading to duplication of effort, ineffective control and management, and also wasted resources.

The water resources report published in 2006 provided a comprehensive review of the water resources in the Emirate of Abu Dhabi. The report defined all water sources and users up to the year 2006, highlighted problems associated with current water management practices, and provided an outlook for future practices in water resources management in the Emirate. The outlook underlined the need to continuously study and complete Master Plans with associated activities and programs for all water use sectors including domestic and bulk water supply (from both desalination and groundwater), agriculture (largely from groundwater) and amenity plantation (mixture of groundwater, desalinated water, and treated waste water). A year later the Environment Agency- Abu Dhabi (EAD) issued the Strategic Plan 2008-2012 which mapped out 10 Priority Areas and defined specific strategies to achieve the identified targets for each priority area. Water came at the top of this agenda.

The Strategic Plan (2008 – 2012) of EAD recognized the following water related challenges among others:

- As in all arid countries, water is a scarce commodity in the Emirate of Abu Dhabi. Abu Dhabi Emirate has less than 100 mm rainfall per year, and a low groundwater recharge rate of less than 4% of total annual water used. The water is mostly saline and brackish groundwater, with only 3% fresh water. There are no reliable, perennial surface water resources.
- Abu Dhabi currently has one of the highest per capita water consumption rates in the world. Rapid social and economic development over the last four decades has led to water scarcity, groundwater depletion, and potential for pollution, (especially nitrates from the extensive use of inorganic fertilizers).
- The groundwater level in Abu Dhabi Emirate has declined significantly because of uncontrolled drilling of wells. The exponential reduction in groundwater levels over the last years is largely caused by an increase in human activities. Nitrate levels in groundwater exceed drinking water guidelines for a bulk of the groundwater. Exposure to high levels of nitrate represents a health risk.
- Desalinated sea water is now the main source of drinking water. Unsustainable water consumptions- Abu Dhabi Emirate's daily water consumption rate of 550 litres per person is one of the world's highest domestic water consumption rates.
- Saline groundwater has increasingly been used for irrigation. Soil salinity has increased to the extent that, in many areas, only a few salt-tolerant crops are now grown (i.e., Rhodes grass and dates). Excessive and improper use of inorganic fertilizers by farmers has also resulted in widespread nitrate leaching and contamination of the groundwater.

Detailed Master plans have already been developed in the past for domestic water supply and also for treated wastewater. A master plan for groundwater development is still lacking particularly for its use in the agriculture and forestry sector. This is now the responsibility of EAD to develop following a participatory approach where the users and other stakeholders should be fully involved.

As most of the drinking water in the Emirate is currently produced by means of desalination plants located on the Arabian Gulf coast, there is high risk of an inadequate back up source of supply in the event of failure of their supply. A strategic water resources plan to provide an alternative for drinking water is extremely important if the desalination plants stop their operations under a state of emergency. Aquifer Storage and Recovery (ASR) Scheme for Abu Dhabi has been investigated since 1998. In association with Mubadala, EAD carried out a feasibility and pilot test study in the eastern region. The scheme aims at recharging groundwater aquifers with piped desalinated water produced from the newly constructed desalination plant at Qidfa. A similar ASR pilot scheme has just been completed in the Liwa region.

State-of-the art waste water treatment plants have been developed and expanded to treat and reuse the treated wastewater in irrigation of green areas in the Emirate. In 2002, a very comprehensive assessment and review of the treated sewage effluent transmission, distribution system and irrigation management was conducted for Abu Dhabi Island which provided firm recommendations on the work required to meet the growth in demand of water for irrigation to the year 2020. The report concluded that the landscape currently irrigated with treated effluent covers

an area of approximately 17 km² of Abu Dhabi Island and is predicted to increase to 22 km². The assessment of irrigation water quantity showed that insufficient supply of treated sewage effluent to meet current and future demands. It is striking to know that only 17 % of the total used quantity of domestic water is treated. The balance is attributed to leakage from the transmission network.

8.5.1 Water Sector Governance Structure and Institutional Arrangements

Since no single authority had the mandate for water resources management, water resources development in the past followed unplanned efforts characterized by duplication and led to wasted resources. Responsibility for production and distribution of drinking water is vested within Abu Dhabi Water and Electricity Authority (ADWEA) which was established in 1999. There are now eight production companies responsible for generation of electricity and the desalination of water. Five of these companies are privately operated and partly owned by foreign investors. All electricity and water output is sold to a single buyer—the Abu Dhabi Water and Electricity Company (ADWEC).

Transmission and dispatch of all water and electricity through the Emirate is the responsibility of Abu Dhabi Transmission and Dispatch Company (TRANSCO). Distribution and supply of water and electricity to final customers is the responsibility of Abu Dhabi Distribution Company (ADDC) and Al Ain Distribution Company (AADC). It can be easily noticed that the group of companies including TRANSCO, ADDC, and AADC are natural monopolies, since ADWEC is the single buyer. As a result, these companies are subject to price controls which limit their profits and set performance standards so as to protect the rights of customers who do not have a choice in choosing the service provider.

The Regulation and Supervision Bureau (RSB) was set up as the independent regulator of the water and electricity sector. The RSB is empowered by Law No (2) of 1998. In 2005, the RSB was also given responsibility for the regulation of sewerage services throughout the Emirate.

In 2005, the newly restructured Environment Agency of Abu Dhabi (EAD) was assigned total responsibility for groundwater management. EAD's main focus at present is on regulation of groundwater use, the development of a groundwater resources monitoring system and establishing a water information network through a centralized water resources database. In late 2005, EAD established a groundwater monitoring network, and in April 2006, work commenced on the development of a comprehensive water resources database in the Emirate.

8.5.2 Water Laws and Regulatory Framework

Lack of regulation and control on the development and use of water resources has been considered as the main reason for the current gloomy water situation especially on water use for agriculture. Policies, standards and laws regulating the use of treated wastewater for various purposes are yet to be developed, including use of treated effluent for enhanced recharge of groundwater aquifers or irrigating crops for human consumption.

As a major step towards controlling groundwater development, a water well drilling Law (Law No 6) was issued in March 2006 and the well permitting policy is managed by EAD. The law consists of 26 articles. Among others, the Law:

- Stipulates that a license must be obtained from EAD before carrying out any works, including drilling new wells, deepening an existing well, increasing a well's diameter, boosting water recovery by using a pump, replacing an old well, transporting or selling well's water.
- Specifies provision for obtaining the license for well drilling and the license for practicing well drilling works, and that drilling license applications must be submitted by the well owner who shall enclose all required documents along with the application.
- States that approval or rejection of the application shall be sent in a written and registered notification to the applicant. The applicant possesses the right to appeal the decision to the EAD Secretary General within thirty days of notification and that licensee shall adhere to the plan, design and technical specifications decided by the concerned department at the EAD. According to the law, duration of the license for well drilling work shall be two years.
- Binds owners to maintain farm wells, pumps, meters, pipes and irrigation conduits. Contractors who practice well drilling works without license shall be imprisoned for no less than three months and no more than one year and/or fined DH 10,000 to DH 50,000.
- Specifies penalties for other violations by both contractors and owners. Owners must notify EAD for any wells dug before issuance of this law by filling out a special form.
- Grants EAD employees powers to access any land, farm, or facility to conduct research or to collect data on deep water resources, provided that the owner of the land, farm or facility shall be notified prior to the visit.

8.6 Marine Environment Policies

8.6.1 Enforcement and regulatory legislation

More than 10 federal laws and 20 emir decrees relating to the marine and coastal environment have been produced by the UAE since 1971. However, none of these provide a comprehensive framework for integrated planning and management of the coastal zone. Furthermore, the existing legislation relating to the marine and coastal environment requires a comprehensive review as it has some major omissions including (1) poor mandating and definition of executive authority, (2) penalties are not always clearly stated, (3) liability and indemnity against environmental damage are not emphasized, (4) monitoring, control and surveillance schemes, and mechanisms of enforcement are not explained, and (5) specific regulations for the coastal zone are not present. It is clear that there is a need to develop and implement legislation for Integrated Coastal Zone Management. The proposed draft 'Coastal Zone Management Law for the Emirate of Abu Dhabi' once implemented is anticipated to fill some of the existing omissions.

The levels of compliance within the Marawah Marine Protected Area to date have been less than satisfactory and both the extent and frequency of offences has remained high due to a lack of proper monitoring control and surveillance. The absence of appropriate bylaws for administering a penalty regime and staff education regarding laws and regulations are other reasons for poor management performance.

The Environment Agency has proposed a review of the current rules and regulations pertaining to fisheries, Law (23/1999) and expansion of its unit to take responsibility of implementation of the fisheries regulations for Abu Dhabi in coordination with the Coast Guard and Marine Police.

8.6.2 Aquaculture

As aquaculture activities in Abu Dhabi are generally on a small experimental or pilot project scale, the input of effluent waters into the marine environment is negligible. Sites are usually remote from urban and industrial areas and there are no conflicts with other users due to their small size. Nevertheless, if allowed to develop without regulation, cages and other infrastructure could cause congestion in coastal waterways. Also, a particular concern for the industry is the culture of imported species that do not occur naturally in the waters of the Emirate and their potential ecological impact if released into the wild.

Whilst aquaculture has been relatively benign with no significant environmental impacts, the absence of operating guidelines, regulations and legislation to govern the development of the industry is probably the single most pressing management issue. The aquaculture potential for a variety of species in Abu Dhabi, has been investigated, however, there are other commercially important species with the potential for aquaculture which have yet to be studied. This is particularly important given the depleted status of fish stocks in the Emirate and the potential for aquaculture in stock enhancement. However, the effectiveness of existing stock enhancement and rehabilitation activities needs to be evaluated, a baseline survey of the industry is required, and management regulations and guidelines need to be developed. A survey of potential aquaculture sites is also warranted.

8.7 Bird Flu/ Avian Influenza

United Arab Emirates Minister of State for Cabinet Affairs Decree Number (529/3) for year 2005 approved the formation of National Emergency committee with specific tasks and functions for monitoring Avian Influenza (e.g. Bird Flu) in the country. It also called for the formation of the necessary steering committees at federal and local levels.

The Secretariat of the National Emergency Committee for Avian Influenza was set up to ensure the protection of the UAE and society from Bird flu. This is to be done through preparing the scientific abilities and strengthening them. It also includes building up the emergency strategic stockpile of anti Bird Flu virus medications.

EAD has been exerting efforts to prevent Avian Influenza through development and continued implementation of the Avian Influenza National Action Plan to prevent the disease from spreading in UAE in its capacity as Secretariat of the National Committee for Emergency Response to Avian Influenza.

A national plan issued by the Agency "A National Avian Influenza Crisis Management Plan in the United Arab Emirates (Version 9, March 2006)", details the cautionary and monitoring procedures to be taken at the federal level. It also lists the roles of each organization at different stages. The plan also called for banning the import of poultry and birds from the infected countries, monitoring all the country's entry points, quarantining any birds found infected, vaccinating the birds, storing avian influenza vaccine, and monitoring of wild birds.

The National Committee Organized two drills in 2006. The first drill, *The Deadly Migration*, tested the preparedness of the relevant organizations to quarantine the disease in case it spread between the birds. The second drill, *The*

Deadly Migration Part II, tested the preparedness of the relevant organizations to control the disease in case it spread between humans.

EAD continued to promote awareness through the *Better Safe than Sorry* nationwide multilingual campaign through which millions of residents and citizens were made aware of the disease, how it could spread, and the ways to prevent it. The Agency distributed posters and brochures and spread awareness via the local radio and TV stations. Those targeted included pet shop owners, entry point employees, poultry farmers and workers, as well as students and families. This Agency also produced and distributed an awareness traveller's booklet in five languages (Arabic, English, French, German and Hindi) at all the country's entry points.

8.8 Emergency and Crisis Management

Further to the Environmental Emergency and Crisis Management Committee which was formed in 2005 including EAD as a chair with aims to improve response systems in emergencies. Abu Dhabi Executive Council approved in 2006 a project proposal for the development of an emirate wide system for emergency and crises management which was submitted late in 2005. An International Experts Consultant was contracted to execute the project June 2006. The project, which was completed in April 2007, provided a comprehensive assessment of Abu Dhabi Emirate financial, human resources, emergency preparedness response planning capabilities, and risk assessment. Accordingly, the Consultant recommended the requirements for the establishment of a system for crises management and emergency preparedness, prevention, response, and rehabilitation in line with the best internationally accepted practices and standards. The consultant also drafted a crises management law for the emirate of Abu Dhabi.

On 18 May 2008, based on the outcomes and recommendations of the project, Abu Dhabi executive council approved the formation of a higher committee for emergency and crises management in Abu Dhabi Emirate. The committee is charged with the responsibility for ensuring the establishment of centres in line with internationally recognized best practices and for approving of and setting up the legal framework for the system.

8.9 Management and Conservation Initiatives

8.9.1 Institutional structure Federal Government

Organizations

Ministry of Environment and Water: The Ministry has jurisdiction over matters relating to wildlife conservation and the marine environment. The Fisheries Department undertakes applied coastal and marine research relating to commercial activities. The Ministry of Environment and Water is also involved in the monitoring, assessment and management of living marine resources.

Federal Environmental Agency: The government of the United Arab Emirates established the Federal Environmental Agency in 1993. The mandate for the agency covers the development and protection of environmental resources within the UAE, including marine and terrestrial wildlife. The **Federal Environment Agency** took the place of the former Higher Environmental Authority by Federal Law No.7, 1993.

8.9.2 Local Emirate Government Organizations

Public works are carried out by the Department of Municipalities and Agriculture. Many large towns or towns distant from the Capital also possess their own Municipality or sub-office. Public works such as groundwater supplies, reclamation, sewage and wastewater treatment and disposal, irrigation and drainage are mainly within the jurisdictions of these authorities. In 1994, Abu Dhabi Emirate approved the establishment of an Environmental Protection Committee to oversee the protection of areas falling under the jurisdiction of Department of Municipalities and Agriculture-Abu Dhabi. The Environment Agency - Abu Dhabi (EAD) is designated as the competent authority charged with the assessment and management of the environment and living coastal and marine resources in the Emirate of Abu Dhabi. The agency has a sector (Biodiversity Management – Marine Sector) that undertakes a suite of research and management activities relating to marine and coastal resources.

8.9.3 Non-governmental organizations

Oil companies, whose responsibilities include some of the offshore islands, are often engaged in activities associated with independent consultants who are often called in to undertake environmental assessments ahead of construction developments or other operations. Shell Ltd. has provided funds for mangrove and turtle studies; The Abu Dhabi National Oil Company (ADNOC) and Abu Dhabi Company for Onshore Oil Operations (ADCO)

finance a variety of marine environmental research; Between 1996 and 2001, the Natural History Museum of the United Kingdom carried out investigations on the hard bottom biotopes of Abu Dhabi with financial assistance from the Abu Dhabi Company for Onshore Oil Operations (ADCO).

The United Arab Emirates University (UAE University) based in Al Ain houses a Marine Environment Research Section. This section deals with both independent and collaborative research with other national institutions.

Other non-governmental organizations include the Emirates Natural History Group which conducts lectures and field excursions and promotes conservation and awareness on issues concerning the wildlife and cultural heritage of the UAE. Similarly, the Emirates Environmental Group campaigns on environmental issues throughout the UAE and conducts public education and awareness activities. The Emirates Diving Association is involved in raising public awareness in relation to marine environmental issues, especially among school children. The organization also holds clean-up dives and beach clean-up campaigns.

8.9.4 International organizations

A number of international organizations have both direct and indirect inputs into the assessment and management of the marine and coastal environment of Abu Dhabi. These include the Gulf Cooperative Council (GCC) and the Gulf Area Oil Companies Mutual Aid Organization. The UAE is, along with other Gulf States, a signatory to the Kuwait Action Plan, drawn up by the Regional Organization for Protection of the Marine Environment (ROPME). Several other notable international organizations include the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA), the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), and International Union for the Conservation of Nature (IUCN).

8.9.5 Legislation, regulations and strategies

The principal legal instruments of the federal government of the UAE relating to the marine and coastal environment are Federal Law no. 23, 1999 on the Exploitation, Protection and Development of Marine Biological Resources in the UAE, and Federal Law no. 24 for the Protection and Development of the Environment. Federal Law no. 23 includes regulations for fisheries and the exploitation of living marine resources. Federal Law no. 24 relates to environmental protection, pollution control, the conservation of biological diversity, sustainable

exploitation and compliance with associated international and regional conventions. The law also specifically relates to protected areas (Ch. IV, Articles 63-68).

The UAE hunting law, Federal Law No. 9, 1983, was introduced in recognition of the decline in desert and marine species in the UAE. The law prohibits the hunting, gathering or destruction of a variety of wildlife including sea birds and the dugong (*Dugong dugon*).

In addition to federal laws, decrees issued at the Emirate level play an important role in the governance of coastal and marine resources. The Marawah Marine Protected Area, which has been declared as a UNESCO Biosphere Reserve, for example, was declared by Decree No. 18 of 2001. See Appendix (2) for a full list of applicable laws and decrees.

The UAE is also a party to a variety of international conventions that relate to the coastal and marine environment as follows:

1. Convention on International Trade in Endangered Species of Fauna and Flora (CITES) - signed and ratified in 1990.
2. Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment - signed in 1978 and ratified in 1980.
3. Convention on the Control of the Transboundary Movement of Hazardous Wastes and their Disposal (Basel Convention) - signed in 1989.
4. Convention on Biological Diversity - signed in 1992.
5. United Nations Framework Convention on Climate Change (UNFCCC) - signed and ratified 1995.

In addition to the legislation, a number of environmental strategies and action plans have been developed for the region, nationally and specifically for the Emirate of Abu Dhabi. Some of the regional action plans include the 'Regional Action Plan for the Conservation of Coral Reefs in the Arabian Seas Region' and the 'Kuwait Action Plan' both developed by the Regional Organization for the Protection of the Marine Environment (ROPME) and member states.

8.10 Terrestrial Environment Policies

8.10.1 Grazing

Local Law No. (13) of 2005 concerning Regulating Grazing in Abu Dhabi Emirate provides the EAD with the legal mandate for combating desertification and meeting the country's obligations under the UN Convention on Combating Desertification-UNCCD. The law, which is implemented by EAD, was issued to prevent deterioration of natural grazing areas in Abu Dhabi Emirate which are considered important to a large number of terrestrial animals and for conservation of local environment biodiversity. Low rainfall, miss-use of grazing lands and growth of grazing animals also challenge terrestrial animals and plant. The (10) Article Law aims at regulating grazing and bans use of motorcycles, cars, and all sorts of vehicles in grazing operations.

The Law prohibits locating grazing farms beyond a distance of more than one kilometre from the traditional well in desert areas and set requirements for water use and transport within the specified distance. This Law requires grazing farm owners to protect the wildlife, general health and cleanness of the animals in the grazing areas, and allows violators 3 months to comply. According to this Law, EAD will coordinate and assist grazing farm owners in implementation of this Law and in issuing appropriate license.

In February 2006, a Resolution on grazing was issued by Abu Dhabi Crown Prince and Chairman of Abu Dhabi Executive Council on the Executive Regulations of Local Law No. (13) of 2005 concerning organizing grazing of livestock in the Emirate. According to the regulations, a committee shall be formed by the concerned authority to organize grazing and shall be headed by a representative from that authority. Representatives from the grazing areas and from other relevant authorities shall be selected as members of the committee. The resolution mandates the committee to identify grazing farms, their owners and livestock. The committee also works to determine numbers of traditional wells and to submit a report on them to the relevant authority. The committee shall also specify grazing areas, excluding public lands, lands under development for agricultural and residential purposes, lands allocated for government entities and any lands exempted by the executive council.

8.10.2 United Arab Emirates and CITES

The UAE (United Arab Emirates) is the 104th Party to the CITES Convention with its Accession to the Convention on 8 February 1990 and effective as of 9 May 1990. The CITES Convention in the UAE is managed at a

Federal level. To properly implement CITES, a Party must designate a Management Authority and a Scientific Authority that must be independent from each other.

At a Management Authority level there are two main authorities in the UAE, namely:

Management Authority - The Management Authorities are responsible for reviewing requests, issuing and/or rejecting CITES Permits and Falcon Passports. This authority also cooperates with agencies both inside and outside the country to facilitate implementation of the Convention. The management Authority is also responsible for sending Annual Reports to the CITES Secretariat and participating in the Conference of Parties held every 2 years. The two Management Authorities in the UAE represent the Emirate of Abu Dhabi and Dubai and the Northern Emirates. The Abu Dhabi Management Authority is the Federal Environment Agency (FEA) based in Abu Dhabi. The Management Authority for Dubai and the Northern Emirates is the Ministry of Agriculture & Fisheries (MAF) based in Dubai.

Scientific Authority - The Scientific Authority provides scientific advice and non-detriment findings to the Management Authority about the export of species listed in CITES Appendix I and II and import from CITES Appendix I. This authority also provides scientific advice for live animal handling facilities for CITES Appendix I animals. This authority also monitors trade in general and gives opinions and advice to the Management Authority on the placement of confiscated species and their derivatives. This authority is also responsible for handling tasks designated by the Management Authority. The designated scientific Authority in the UAE is the Environmental Agency-Abu Dhabi.

8.10.3 CITES Permits

When a CITES listed species moves across an international border both a CITES export (country of origin) and an import permit (country of destination) must be issued. This allows the movement of specimens from country A to B. If the specimen then moves from country B to C, country B has to issue a re-export permit and country C an import permit. To facilitate this complex procedure the UAE has introduced Federal level software that is linked between the two Management Authorities, one Scientific Authority and to MAF offices in international airports such as Abu Dhabi and Dubai. This software also allows the issuance of permits, and the stored information is being used to generate Annual Reports for the CITES Secretariat and provide data on trade trends for scientific analysis.

8.10.4 Falcon Passports

Falconry is a traditional sport in the UAE which has been practiced for many generations. It is common for falconers to travel to countries within the region to practice their sport. As all falcon species are listed in CITES Appendix II and some in CITES Appendix I this necessitates the issuance of CITES permits every time a falconer travels across international boundaries with his falcon(s). To overcome the need for extensive paperwork every time a person travels across an international border, the UAE has developed the Falcon Passport to replace CITES permits for frequent cross border travel. The UAE has registered and issued passports for over 9,000 falcons. This has also enabled the falcons to be officially registered into a national database and passports are issued for a period of three years which can be further renewed. The falcon passport has owner details and falcon information (species, sex, origin of bird, CITES Appendix, ring number, PIT number, issuing authority, etc.). There are some Parties that currently do not accept the falcon passport as a travel document and for such cases regular CITES Permits are issued.

8.10.5 Trade in CITES listed Species

The legal trade in CITES listed species in the UAE is mainly focused on mammals. This comprises mainly:

- Large carnivores - These are mainly lions and leopards, live and trophies and large herbivore (antelope and gazelles) species.
- Birds - This comprises mainly of falcons, parrot species and small ornamental birds for the pet trade.
- Reptiles - This consists of mainly boas and pythons for the pet trade and crocodilian skins for expensive watch straps.
- Products and derivatives - This consists mainly of caviar from sturgeon species and agar wood which is used in the perfume industry.

This Law includes 40 Articles and covers the following issues:

- Scope of application: applies to all specimens of the species listed in the Appendices that are part of the International Convention of Trade in Endangered Species of Wild Fauna and Flora.
- General provisions: Import, transit and transshipment, export, re-export, and introduction from the sea of any specimen of the species listed in the Appendices should be in accordance with the provisions of this Law.
- Responsibilities of the Management Authorities, which include revision of applications for granting

permits and certificates, communication with the secretariat of the convention and other parties on scientific, administrative and enforcement issues, maintain records of international trade and preparation of annual reports.

- Responsibilities of the Scientific Authority, which include giving advise to the Management Authorities on issues related to trade in certain species, protection of species and on the disposal of confiscated or apprehended specimens.
- International trade documents required upon issuance of a permit or certificate.
- Exceptions in trade with some species.
- Trade with non-parties to the convention.
- Penalties for trading without permits.

8.10.6 Management of Protected Areas

EAD is a main actor in conserving the wildlife and ecosystems in Abu Dhabi Emirate, as well as creating and implementing research projects, permitting, tracking and monitoring programs. Currently, UAE is considered one of the most responsible conservationist countries worldwide. Ever since the discovery of oil in the 1970s, the UAE has placed conservation and protection of the environment as part of its development policy. It has established several conservation organizations, which include the Federal Environmental Agency and the Environment Agency - Abu Dhabi. EAD is the major conservation agency in the UAE responsible for environment and wildlife issues in the Emirate of Abu Dhabi which have been at the forefront of the UAE's conservation efforts. Overseeing a number of breeding centres and refuges for endangered marine life and wildlife, the UAE has one of the most efficient environmental conservation policies in the world. Within the past year, the UAE government has spent over \$100 million on conservation and breeding projects to protect endangered species in the region, especially for falcons and houbara.

8.11 Sustainability

In May 2008, EAD launched the 1st Public Sector Sustainability Report in the Arab world based on the Global Reporting Initiative (GRI) guidelines which also are adopted by an increasing number of governmental institutions and private companies throughout Europe, North & South America, South Africa, Australia and Asia in various sectors. The report covers EAD financial, environmental, and social performance from 2005 to 2007, and targets from 2009 and 2012 as well as EAD action plans to enhance organizational performance in 2008.

8.12 Environmental Awareness

A decision by Sheik Hamadan Bin Zayed Al-Nahyan in March 2005 (EAD Decision No (6) / 2005) catalyzed the formation of a supervisory committee on environmental awareness and activities programs in Abu Dhabi Emirate. This committee included members of EAD, Ministry of Education, UAE Federal Environmental Agency and other concerned governmental entities.

The committee is responsible for supervising the management, organization, evaluation, development, and financing environmental awareness activities in Abu Dhabi Emirate with all concerned parties. This committee functions for duration of three years which could be extended for another three years with EAD being the secretariat for the committee.

Establishing this Committee to supervise public awareness programs and activities in Abu Dhabi Emirate constitutes a major step towards integrating the national efforts of the organizations responsible for education, planning and public services into the already well-recognized environmental education and public awareness programmers implemented by EAD.

8.13 Data Policies and Regulations

In this section, data policies and regulations are reviewed in terms of their potential to achieve more effective environmental management, monitoring, and overall decision-making. Most importantly, how policies and regulations address data, either as a required asset or from a data sharing policy perspective, is a critical aspect to assess.

8.13.1 Policy

Considering data from a policy perspective can be effected at several levels. The first is from the EAD perspective, and towards this end the results of the AGEDI Program Alignment Strategy will be reviewed here as the AGEDI team has collected significant information, specifically identifying data requirements from each programme, including international conventions. A second perspective is not from EAD exclusively but rather across all stakeholders, in the form of the Abu Dhabi Spatial Data Infrastructure (AD-SDI). A third can be added to this, namely, the forthcoming Statistical Bureau, but this will not be discussed in this paper as not enough is known about this entity at this time.

8.13.2 EAD Data Requirements

As part of the AGEDI program, a Program Alignment Strategy (PAS) evaluated 21 EAD programs that are either part of or related to AGEDI, to determine those areas that need alignment to acknowledge interdependencies, reduce redundancy and increase efficiency and overall program effectiveness in meeting the challenges of environmental management and protection in Abu Dhabi. As part of that study, spatial and non-spatial data requirements were evaluated for each program individually. This section summarizes the findings of that study, specifically Section 3.3 that deals with the assessment of the common data needs across all of these programs from the perspective of 11 environmental/social sectors.

It is evident that the data requirements are built from the ground up, depending on the specificities of each program, project, or study, as opposed to their being an overarching comprehensive data policy. Without any additional investigation into this aspect, it is not possible to say if there is anything inherently problematic with this, other than the significant fact that if the data requirements are not aligned, there is room for data redundancy at best and conflicting data at worst.

Six programs that could be considered 'indicator' type programs were evaluated for their similarities and differences. As could be expected, each of these programs reports at one or more spatial scales, although usually there is a principal scale at which the data is compiled and reported but one or more larger scales at which results can be rolled up for larger scale assessments. The following table illustrates the principal and potential reporting scale of each program, where "potential reporting scale" refers to programs that are designed for aggregation at higher spatial scales.

Other than scale, there are differences in the sectoral emphasis of each indicator program, as illustrated in Table 5 below. Some are very comprehensive while others are more focused on a narrow set of key issues. It is notable that very few of the indicator programs are concerned with cultural heritage. Water resources and air quality, though fairly narrowly defined sectors, are addressed by nearly all programs.

Table 5: Indicator programs and the sectors they address

Indicator Program	Air Quality and Climate	Cultural Heritage Resources	Environmental Awareness	Health and Safety	Marine/Coastal Ecosystems	Population, Society, Development and Economy	Terrestrial Ecosystems	Waste Management	Water Resources	Total
ADEPI	1					1		1	1	4
Abu Dhabi State of the Environment (SoE) Report Update	1	1			1	1	1	1	1	7
Ecological Footprint					1	1	1		1	4
Environmental Performance Index (EPI)	1			1		1	1		1	5
Environmental Sustainability Index (ESI) – now EPI	1		1	1		1	1	1	1	7
Millennium Development Goals	1		1	1		1	1	1	1	7
Sustainability Reporting Program	1		1	1		1	1	1	1	7
West Asia Geo Portal and EOAR	1		1	1	1	1	1	1	1	8
Total	7	1	4	5	3	8	7	6	8	

8.13.2.1 Air Quality and Climate

As mentioned above, air quality and climate data are broadly needed by programs included in this assessment. In Abu Dhabi and the UAE, air quality is a growing concern as evidenced by it being a Priority Area in the EAD Strategic Plan. Although a number of agencies in Abu Dhabi are

collecting air quality data for monitoring purposes, little systematic data sharing is occurring. Given the need for air quality data across programs, it follows that a process for improving access to these types of data is needed to support programs conducting environmental assessment, data dissemination, health planning and other activities.

Table 4: Primary reporting scales for indicator programs

Program Name	Reporting Scale				
	Enterprise	Sub-National	National	Regional	International
Abu Dhabi Environmental Performance Index (ADEPI2)		1	0	0	
Abu Dhabi State of the Environment (SoE) Report Update		1	0		
Ecological Footprint;			1		
Environmental Outlook for the Arab Region;				1	0*
Environmental Performance Index			1		
EAD Sustainability Management	1	1			
Total	1	3	2	1	0

1 - Primary Reporting scale

0 - Potential Reporting scale

8.13.2.2 Water Resources

As mentioned above, water resources data are broadly needed by programs included in this assessment, covering groundwater, potable water, and other water resources. Groundwater data is quite comprehensive and relatively complete compared to other types of environmental data in Abu Dhabi. The value of these data is enhanced by well permitting system, which is gradually resulting in better data on groundwater extraction and other monitoring information.

For several reasons, data on potable water supply and demand is useful both for water resources management as well as for estimating energy consumption in Abu Dhabi. Energy consumption is a key indicator for several programs AGEDI is involved in. Programs in need of potable water data are using it primarily for assessments of water use efficiency and drinking water availability.

Programs need a variety of water resources data in addition to those discussed above. These include basic information on the location of water production facilities and transmission networks, general information on water consumption from both surface and ground sources for various indicator programs, and information on water quality constituents are needed by programs concerned with environmental health and general monitoring, and finally the location of surface water sources are needed for programs conducting monitoring and for spatial reference on map products.

8.13.2.3 Marine and Coastal Ecosystems

Marine and coastal ecosystems are of particular interest in Abu Dhabi. To date, no comprehensive assessment of significant terrestrial and marine habitats in the Emirate exists. Rapid coastal development makes the need for a comprehensive marine/coastal habitat assessment all the more immediate. There are currently several constraints to both marine and terrestrial habitat delineation in Abu Dhabi. One constraint is a lack of comprehensive baseline data for environmental variables commonly used to develop habitat models. Another constraint is a lack of consistent, comprehensive observational data needed to develop and validate these models. These issues are partly due to the fact that many baseline studies were conducted for projects that were focused on particular areas and discrete periods.

There are several constraints that limit the use of both marine and terrestrial species data in Abu Dhabi. Among these constraints is a lack of baseline inventory and monitoring data for focal species. This prohibits a synoptic view of the distribution, density and trends in these populations.

Programs need a variety of marine and coastal ecosystems data in addition to those discussed above. These include data related to marine hydrologic processes such as currents, upwellings, bottom type and other features, in addition to data on water quality, monitoring locations and related characteristics of marine water.

There is a need to systematically record tracks associated with species observation data, as it is just as important to record where one searched and found nothing as it is to record where one searched and found something. Delimiting the total area of observation is key to discriminating true spatial patterns from those that are simply an artefact of sampling design.

There is also a potential need to assess species abundance within and across taxa. This type of assessment is useful for finding concentrations of biodiversity and potential centres of species endemism and is an important component of broad-based ecosystem assessments.

8.13.2.4 Terrestrial Ecosystems

There are currently several constraints to both marine and terrestrial habitat delineation in Abu Dhabi. One constraint is a lack of comprehensive baseline data for environmental variables commonly used to develop habitat models. Another constraint is a lack of consistent, comprehensive observational data needed to develop and validate these models. This prohibits a synoptic view of the distribution, density and trends in these populations.

Land cover and land use data are a fundamental requirement for a number of core EAD activities yet no current, comprehensive and consistent land cover dataset exists for the Emirate. This is a key data gap that, if filled, could be used to leverage multiple projects and programs within EAD.

EAD is engaged in a multi-scale, multi-year comprehensive soils survey for the entire Emirate. Although this database is being developed in part to support implementation of the soil survey, its use will extend far beyond the duration of the project.

Programs need a variety of terrestrial ecosystems data, including surface and subsurface geology for studies of species habitat and landform, and slope for evaluating erosion potential for agriculture and coastal erosion as a result of sea level rise.

8.13.2.5 Population, Society, Development and

Economy

This social sector comprises a number of issues pertaining to human activities and the impacts that these activities have on the environment. Many programs need data related to this broadly defined sector, covering fisheries, agriculture, forestry, energy, population, and vital statistics.

Fisheries: Monitoring of stock status, fish catches and fishing activities have been monitored by EAD since 2001. Some of these data have been incorporated into GIS analyses of fish migration patterns. There have been issues with sharing of NOAA data over publication rights.

Agriculture: While agriculture and forestry in Abu Dhabi are a fractional part of the economy, this sector accounts for approximately 79% of water use for green areas. The total area under plantation forestry cultivation has increased by approximately 28% per annum since 1989. As such, data on these activities is quite important.

Energy: The energy sector is clearly important in Abu Dhabi as it is the primary source of national wealth. Amongst the principal issues associated with energy related data is their restricted availability to users outside of the oil and gas sector. Opportunities exist for through programs like Ecological Footprint and the EAD Sector Paper effort, which are actively engaging stakeholders in this sector to share their data.

Population: Given the transient nature of the Abu Dhabi population and the way that population data has been collected and reported in the past, no single figure of the UAE population exists. This confounds efforts to report accurately on per capita consumption and other statistics for the UAE.

Vital statistics: A general issue associated with vital statistics data is that it is often reported at aggregated scales, making it difficult to identify health issues at smaller administrative levels. This is often done to protect the privacy of individuals, another issue that limits use of public health data outside of authorized agencies and research groups.

There is a need for standard methods and tools for calculating population, development, economy and other indicator statistics. Although indicator programs publish methodologies for deriving their indicator statistics, it is common that the data specified in the program documentation does not exist locally, or exists in a number of forms such that it can be difficult to determine which data source to use. These methods would help to standardize the process and methods by which EAD

and others report on indicators and international treaties. Related to this is the need to reconcile various population figures for the Emirate in order to facilitate sustainability and other types of reporting.

There is a need for systematic data sharing between forestry and agricultural sectors and programs concerned with water resources, especially as the forestry and agricultural sectors in Abu Dhabi use a significant amount of groundwater.

There is also a need for systematic data sharing between energy development sectors, environmental health and emergency management groups.

8.13.2.6 Cultural and Natural Heritage Resources

Cultural heritage resources refer to archaeological, historical and other cultural characteristics of a society. Natural heritage is a fairly general term that is often used to describe ecosystems that are unique to a place and therefore merit protection. A preliminary assessment of protected areas GIS data indicates that there is a need to associate protected area boundaries with legal status of those areas. This would more clearly describe the type and level of legal protection afforded species and habitats within these zones.

8.13.2.7 Environmental Awareness and Action

Information about the education sector in Abu Dhabi is needed for a variety of purposes. Perhaps a more critical need here is data that helps education planners to anticipate the education needs of a rapidly industrializing economy and increasingly diverse society.

Raising environmental awareness in Abu Dhabi is a chief concern of EAD and is one of the agency's stated Priority Areas in its Strategic Plan. EAS is currently engaging an outside contractor to conduct a public opinion survey on environmental awareness. No issues related to awareness data have been identified at this time, pending the release of the awareness and behaviour survey.

8.13.2.8 Hazardous Materials and Waste

Management

The need for data to support hazardous materials and waste management spans several programs. Environmental health planning and environmental performance reporting are the primary areas where this type of data is needed. The following sections elaborate on those needs and draw some general conclusions.

Information about solid waste production and disposal is an important indicator of national levels of resource consumption and rates of recycling. Waste generation is not tracked at the household level but estimates from waste transfer stations are available. Along with hazardous waste management and data, it is expected that the newly created Waste Management Centre will address most if not all of the data needs, but this needs to be investigated further.

8.13.2.9 Environmental Health

There are no known issues with EAD environmental health data at this time. General issues include access to data that is normally sensitive in nature, including application of chemicals and pesticides, storage and distribution of hazardous waste. In many cases these data are only reported at aggregated scales, making it difficult to do more localized assessments of environmental health issues.

8.13.2.10 Emergency Management

Emergency Management is a Priority Area of EAD. An emergency Management System (EMMS) was recently developed that includes prevention, mitigation, preparedness, response, and recovery programs to manage any internal and external emergencies. No issues or opportunities related to emergency management data have been identified at this time.

8.13.2.11 Non-sector specific

Existing sources of basemap data for Abu Dhabi are several years old and in the process of being updated. It will be important that programs relying on high quality, accurate basemaps for resource inventories are aware of these efforts and have input to the basemap update process.

While the boundaries between the three municipalities will soon be demarcated and mapped, there is a need to have other administrative units (districts, sectors, etc.) harmonized across the Emirate and eventually mapped.

In regards to statistical boundaries, there is no single consistent definition of statistical boundaries for the three municipalities of the Emirate.

8.13.3 Abu Dhabi –Spatial Data Infrastructure

The Abu Dhabi Spatial Data Infrastructure (AD-SDI) is a framework of policies, partnerships, standards, data, procedures, technology and institutional capabilities that are needed to support more effective sharing and utilization of geospatial information in the Emirate. The AD-SDI program was mobilized by the Executive Council and began in June 2007 with the planning and design works. It is now in its second stage focusing on institutionalization.

The policy framework for AD-SDI discussed here obviously focuses on issues that are of special relevance to spatial information. Prevailing governmental geospatial data policies and practices should strive to address a number of goals:

- First, the overall purpose should be to promote the development of economic, social and environmental wealth in Abu Dhabi. This is achieved through increased effective use of geospatial data in analysis and decision making processes in all areas of the economy, and in all levels of government.
- The second purpose of any policy developments should be to increase access to and use of geospatial data and improve sharing amongst holders of data, at all levels of government. Data sets need to be based on collective standards. Access and use are improved by reducing barriers—conflicting standards, high data prices, restrictive licensing policies, detailed negotiation processes and limited data access points.
- Third, policies should attempt to develop the global competitiveness of the Abu Dhabi Geomatics industry, to any extent possible. A strong and competitive local industry will increase development of value-added geospatial data products, as well as related software and hardware technology, and thereby create economic value for the country. The general price-point for geospatial data could be reduced by minimizing distribution costs and reducing licensing and royalty restrictions.
- Fourth, policies and practices should continue to embrace client-focused and responsiveness principles. Policies should continue to encourage a “businesslike” mind-set within administrative units in terms of efficiencies, recognition of government’s role in geospatial data supply, internal resource utilization and planning for product/service offerings. These positive outcomes and incentives of the current data access and distribution policies should be

maintained in any new policy directions.

While at the time of writing there are still a number of policy areas that have yet to be set, there are already clear directions that point to the sorts of policies that will underpin the AD-SDI.

8.13.3.1 National Security

The AD-SDI will have to assure that strategic information assets relative to national security are created, maintained for currency and accuracy, made readily available to those who need them, and interoperable.

8.13.3.2 Privacy

As part of the e-Government program, UAE and Abu Dhabi will need to develop and eventually adopt privacy policies and principles for information in general and spatial information in particular.

8.13.3.3 Intellectual Property Rights

Ideally, the most common geospatial data should be licensed at no royalty cost to users with respect to use and redistribution. Copyright and licensing might better be used to protect quality of geospatial data originating from all government entities rather than to prevent use.

8.13.3.4 Mechanisms for Controlling Access to Sensitive Spatial Data

The Abu Dhabi Spatial Data Infrastructure (AD-SDI) supports open access to spatial data for all users, wherever possible. However, AD-SDI leadership acknowledges that access to sensitive data may need to be restricted and the issue is who has access and how this is decided. On the other hand, there are a number of sensitive spatial data sets that need to be accessed to help manage emergency situations, including data about critical network infrastructures. A high level executive policy guideline is proposed below to help decide on the level of sensitivity of a particular data of concern and the measures to restrict access to the data where applicable:

- Encourage open access to spatial data;
- Provide access for all users to their spatial data holdings under appropriate conditions unless there are specific, compelling reasons to restrict access;
- Decisions on restricting access to data should be based on privacy, commercially sensitive, national security, environmental sensitivity or legislative requirements;

- Where data are sensitive, custodians should give consideration to providing access to generalized or lower-resolution data that would meet user needs while not compromising any sensitivity issues;
- In applying restrictions on access to their data, custodians should take into account impact of the data not being available for public interest such as emergency management and national security, and consider providing controlled access for these purposes;
- If restrictions are placed on access to spatial data, custodians should seek to have these restrictions explicitly contained in a policy document or placed in legislation or regulations that are open to public scrutiny, not left to individual employees to decide on a case by case basis;
- An overarching principle is that, if spatial data exists, its custodian should advise its existence and any access restrictions in metadata records accessible through the AD-SDI Geospatial Portal, or equivalent;
- Data sources having a classification by any government of Secret or above fall outside these requirements, and access will be dictated by the relevant legislation or responsible agency;
- Government data should be maintained in a common repository, i.e. the Data Clearinghouse for routine backup, emergency management, Emirate security and Abu Dhabi leadership access to spatial information.

8.13.3.5 Pricing Policies and Cost Recovery

In the case of Abu Dhabi, the cost recovery scheme is proposed to be minimal, ranging from free access in the case of framework data such as topographic data to full recovery for valued-added services offered by government entities. The exact data dissemination, applicable fees and usage restrictions will have to be worked out with each custodian agency. In general, the following guidelines are proposed to be adopted, recognizing that they will evolve over time:

- The member government entities that are responsible for maintaining various data sets are to be allowed to use the data sets maintained by other member entities free of charge;
- The public who access the data to receive public services are entitled to do so at no cost. Access to public users is controlled through the display of only filtered information;
- Educational and research institutions should be encouraged to use the data free of charge;

- Common data should not be subjected to use restrictions;
- Specialized data that are accessed for any commercial purpose by any class of users should be available on a maximum cost recovery basis or through public/private partnerships.

8.13.3.6 Data Content Standards

Data content standards for Fundamental Geospatial Data Sets (FGDS) will be developed through working groups formed for this purpose, and based on that will be incorporated into agreements between the custodian organization(s) and the AD-SDI coordination body on behalf of the AD-SDI community. The information may be maintained in another format by the custodian entity, but provided to the AD-SDI in the format agreed upon.

8.13.3.7 Regulation

Currently, there are no proper regulations in this regard except the general copyright law [Act 40, 1992]. This law addresses only the issues related to data duplication. As a result, the majority of the data producers prevent access to their data sets, even by the government agencies. In addition to this, despite the commercial benefits, private parties are not allowed to use the rich source of available spatial information.

Of moderate relevance are an existing law and a draft law. Federal Law No. 1 of 2006 in support of developing cyber laws for Abu Dhabi, which outlines methods and procedures for the use and acceptance of electronic documents and the conduct of electronic transactions in United Arab Emirates. Draft Law Implementing Law No. 1 of 2006 Concerning Electronic Commerce and Transactions for the Government of Abu Dhabi outlines methods and procedures for the use and acceptance of electronic documents and the conduct of electronic transactions in Abu Dhabi. Of lesser significance is Federal Law No. 2 of 2006, Combating Information Technology Crimes, which outlines information crimes and punishment for various offences

It is thus fair to say that there is very little legislation in place at present to enable data sharing developments. As such, and as discussed in the policy section above, there are also regulatory issues such as intellectual property, privacy and security that will need to be addressed in the near future under the Abu Dhabi e-Government regulatory framework as well as under the federal umbrella of UAE at later stage since most of the issues raised are common to the entire country.

A framework of Federal and Emirate level enabling

legislation will ultimately be needed to provide the foundation upon which various types of data sharing mechanisms, such as the AD-SDI, can be built. There are several existing information laws and agency decrees that will have some relationship and impact relative to these goals and objectives. These will need some level of harmonization and refinement among them to ensure that they are all compatible and internally consistent with one another, and new laws may need to be developed to cover areas that are not logically included within existing legislation.

ADSIC has developed two proposed pieces of legislation that will have high relevance to data exchange. These are the proposed Public Information Access Act, that addresses public access rights to government data (including spatial data), and the proposed AD-SDI Formation Decree, which acts as a framework for the establishment of an executive mandate for the formal adoption of the Abu Dhabi Spatial Data Infrastructure (AD-SDI).

9 Acknowledgements

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11 Annex I: EHS Committees, Administration, Code of Practice, Sector Guidelines and Manual

11.1 Sector Technical Committees

Building and Construction Sector Technical Committee (Chaired by: Al Ain Municipality)

Members: (Al Ain Municipality, Abu Dhabi Municipality, Ministry of Labour, Abu Dhabi Tourism Authority, General Directorate of Abu Dhabi Police, General Directorate of Armed Forces, Tourism and Development and Investment Company, Engineering Association, Reem Investment, Manazel and Al Dar)

Oil and Gas Sector Technical Committee (Chaired by: Supreme Petroleum Council (SPC))

Members: 17 oil companies (ADNOC group of companies) and Dolphin.

Health Sector Technical Committee (Chaired: Abu Dhabi Health Services Company (SEHA)).

Members: (Abu Dhabi Health Services Company, Health Authority-Abu Dhabi, Ministry of Health, Dept. of Transport, General Directorate of Armed Forces, General Directorate of Abu Dhabi Police).

Industry Sector Technical Committee (Chairman: Higher Corporation for Specialized Economic Zones (Zones Corp)).

Members: (Zones Corp, General Holding Corporation, Abu Dhabi Food Control Authority, Industrialist Union Society, Abu Dhabi Essential Industries, Industrial Zone-Khalifa Port).

Tourism Sector Technical Committee: (Chaired: Abu Dhabi Tourism Authority (ADTA)).

Members: (Abu Dhabi Tourism Authority, Tourism Development and Investment Company, Abu Dhabi Municipality, Al Ain Municipality, Abu Dhabi National Exhibitions Company, Abu Dhabi Educational District-Ministry of Education).

Transportation Sector Technical Committee (Chaired by: Dept. of Transport (DOT)).

Members: (Dept. of Transport: Aviation, Ports, public transport, Highways, Transportation Regulation Centre, Abu Dhabi Airports Company, Abu Dhabi Ports Company, Abu Dhabi Municipality, Committee for AD Airport Expansion, National Communications Authority, General Directorate of Armed Forces).

Energy: (Chairman: Abu Dhabi Water and Electricity Authority (ADWEA)).

Members: (ADWEA, Al Ain Distribution Company, Abu Dhabi Wastewater Company, Regulation and Supervision Bureau for W&E Sector in the Emirate of Abu Dhabi (RSB), Federal Environmental Agency, Abu Dhabi Future Energy Company (MASDAR)).

11.2 EHSMS Administration

11.2.1 Administrative, Advisory, and Support

Functions at Emirate Level:

Administration of the EHSMS Framework at Emirate level will involve a number of important administrative, advisory, and support functions which include:

General Administration:

- Custodian of all the EHSMS documentation and responsibility for its currency and relevancy as the EHS system passes through its initial phases of development and implementation and moves into the on-going monitoring and auditing phase that is required for the system to continuously improve and evolve.
- Coordinating the provision of support, assistance and, where required, training to assist public and private entities in the development, implementation, monitoring, and auditing of their EHS Management Systems.
- Liaison, consultation, and cooperation with authorities responsible for environment and occupational health and safety issues in areas of common interest.
- Approval of the EHSMS developed by the Regulatory Authority responsible for each Sector.

Data Management:

- Collection of information and data about the overall status of EHSMS implementation within each sector and the Emirate.
- Collection of information and data on the overall status of environment, health, and safety issues within each sector and the Emirate.
- Maintenance of emirate-wide EHSMS database (contents of which may be different from sector- and entity-relevant databases).

Reporting:

- Reporting to government on the progress of EHSMS development, implementation, monitoring, and auditing (at least annually, or as required).
- Reporting to government on the overall status of environment, health and safety issues within each sector and the Emirate.

Audit and Enforcement

- Independent auditing of an entity's EHSMS (when, and if, required).
- Independent enforcement of EHSMS requirements (when, and if, required).

11.2.2 Administrative, Advisory, and Support

Functions at the Sector Level

For effective implementation of EHSMS within each sector, the authority regulating that sector is expected to provide a central EHS management in the form of a committee or (more preferably, whenever possible) a dedicated unit or department.

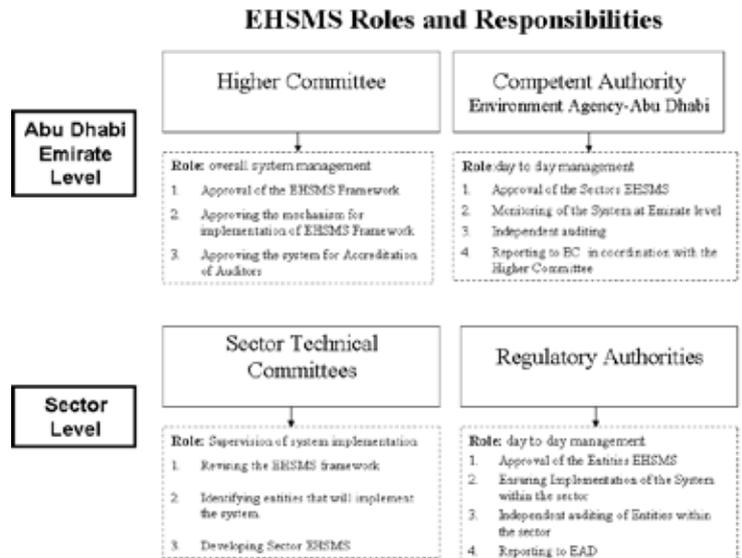


Figure 8: Roles and responsibilities of all concerned parties in EHSMS

11.3 Summary of Abu Dhabi Emirate EHSMS Manual

Abu Dhabi Emirate Environment, Health & Safety Policy

GOALS

Implementation of EHS management systems in all sectors

Compliance with EHS systems

Minimize hazards and risks to the environment and to health and safety

Continual progress towards sustainable development

BUILDING BLOCKS

Partnering with government, private sector and the community

Establish national EHS capability and capacity

Encourage all sectors to adopt and adapt applicable international EHS initiatives and standards

Operational responsibility and accountability for EHS performance

Effective training, education and awareness raising

Monitoring, auditing, and reporting and research to facilitate continuous improvement

The Government of Abu Dhabi Emirate is committed to protect and conserve the environment, and to protect and promote human health and safety for all inhabitants of the Abu Dhabi Emirate.

The objectives of this policy are to achieve excellence in the management and protection of the environment, health and safety, through partnership between all government and private sectors to ensure activities within Abu Dhabi Emirate are undertaken in a responsible, safe and sustainable manner.

Every person living and contributing to the lifestyle enjoyed in the Emirate is encouraged to participate in improving the environment, health and safety conditions for the benefit of current and future generations.

All sectors shall ensure alignment of their plans and activities with this policy and commit to the following guiding principles:

Guiding Principles

- Conduct activities by using resources in a sustainable manner and by following federal and local laws applicable in Abu Dhabi Emirate.
- Undertake activities without compromising or causing conflict with other EHS principles and objectives.
- Integrate economic, social and environmental considerations into decisions to ensure that the measures adopted are cost-effective and in proportion to the significance of the environmental issues being addressed

- Adopt the “Precautionary Principle” that requires approval of effective and appropriate measures by depending on scientific knowledge and best available clean technologies where ever possible.
- Ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations in order to achieve sustainable development.
- Strive to protect the environment and the health and safety of workers and the community by sharing responsibility at all levels of government, the private sector, and the people of the Emirate
- Ensure that the management of environment and health and safety impacts throughout the life cycle of the goods and services, including the ultimate disposal of any wastes, is borne by the producers and users of those goods and services.
- Integrate hazard identification and risk minimization into all aspects of EHS.
- Ensure that the conservation of biological diversity and ecological integrity is a fundamental consideration in decision making
- Ensure that the cost of abatement of pollution and health risk is borne by the generator of that pollution or risk.
- Allow the aspirations of the people of the Emirate to drive the enforcement and follow up for protection of the environment and worker and community health and safety.
- Promote awareness among individuals within the Emirate about their responsibility in protecting the environment and the health and safety of the community.

11.4 EHSMS Framework Codes of Practice

What are the EHSMS framework codes of practice?

There are six (6) Codes of Practice (CoP) in the EHSMS Manual that provides regulatory guidance and advice on important aspects that must be considered when developing an EHSMS. The six (6) Codes of Practice address:

- Self Regulation;
- Roles and Responsibilities;
- Risk Management;
- Auditing and Inspection;
- Emergency Management; and
- Monitoring and Enforcement.

A brief summary and description of each of the Framework Codes of Practice is given below.

1. Code of Practice for Self Regulation

The intent of this Code of Practice (CoP) is to outline the framework for the self-regulation of EHS by public and private sector entities via their development and implementation of an EHSMS.

For the purposes of EHSMS, self-regulation is defined as: *“Action undertaken by sector entities to develop and implement an EHSMS that complies with the laws and policies of Abu Dhabi Emirate and relevant international standards”*.

Self-regulation of EHS is a concept designed to enhance protection of human health and the environment by encouraging the regulated community to voluntarily discover, disclose, correct and prevent violations of relevant laws. Self-regulation, however, always functions within a framework of legal, economic and cultural conditions.

An entity with an EHSMS, and regulating itself via this management tool, must be able to demonstrate that it has:

- Identified and understand all relevant environmental, and health and safety legislation and policy requirements;
- Made provision to comply with these regulatory requirements;
- Procedures in place to enable on-going compliance, and where necessary, improvements;
- Conducted appropriate reviews of performance against defined responsibilities and targets;

- Carried out internal and, where necessary, independent external audits of their EHSMS; and
- Recorded and, where necessary, reported its results to the Sector Regulatory Authority and/or Competent Authority.

2. Code of Practice for Roles and Responsibilities

The purpose of this CoP is to define roles and responsibilities within the EHSMS regulatory framework at both a general and specific level.

The general responsibilities represent the philosophical basis of the EHSMS framework, which are:

- Integration of Economic, Social and EHS Principles;
 - The “Precautionary Principle”;
 - Intergenerational Equity;
 - Conservation of Biological Diversity and Ecological Integrity;
 - Improved Valuation, Pricing and Incentive Mechanisms;
 - Shared Responsibility;
 - Product Stewardship;
 - Enforcement; and
 - Accountability.
- Specific roles and responsibilities are defined in the CoP for:
- Government (or Public) Sector;
 - Private Sector;
 - Employers;
 - Self-employed persons;
 - Employees;
 - Other persons; and the
 - Community

3. Code of Practice for Risk Management

The purpose of this CoP is to describe the requirements for risk management and provide some guidance as to how this is to take place.

Risk management involves the assessment of the potential likelihood (probability) of a harmful occurrence (to people or the environment) and the severity (or magnitude) of the resultant consequences. Once this is understood then control and mitigation measures can be designed to minimise the risk to be “as low as reasonably practicable” (**ALARP**).

The process of risk management requires firstly that all hazards be identified. A risk assessment is then done on each of these potential hazards in four stages, by: Issue Identification; Hazard Assessment; Exposure Assessment; and Risk Characterisation. This may be done in a quantitative, semi-quantitative or qualitative manner, and the CoP provides guidance on this.

Finally once the risks are well understood methods can be developed and implemented to reduce and manage identified risks to the environment, workers and/or the community. **Risk management is a fundamental objective of any EHSMS.**

4. Code of Practice for Audit and Inspection

This CoP provides a framework for auditing and inspection procedures to be developed in an EHSMS.

An audit is a systematic, independent, and documented process for obtaining evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled. Audits may be done internally, but great value can be obtained from getting a qualified independent external auditor to audit an entity’s EHSMS, facility, potentially contaminated land, hazardous materials, occupational hygiene, monitoring programs or air quality modelling exercises.

Accredited external auditors operate to international auditing standards, and are obliged to perform to high ethical standards, but should also be knowledgeable and technically competent within the nature of the audit they are undertaking. To this end there will be an accredited auditor system introduced with Abu Dhabi Emirate to ensure that high standards are maintained.

Where audits reveal non-compliance and this information is acted upon in an appropriately timely manner (depending on the nature of the non-compliance) such that the situation is rectified, then the entity concerned

will be immune from prosecution. Enforcement will only occur when no action is taken to rectify an identified non-compliance issue. Therefore there is a real incentive to audit and rectify any discovered non-compliances.

In addition to systematic internal or external audits, the EHS framework encourages regular inspections to identify any deficiencies. The CoP also provides advice on planning and undertaking inspections.

5. Code of Practice for Emergency Management

The purpose of this CoP is to explain the emergency management planning and response requirements that must be incorporated into an EHSMS. There will be situations where, irrespective of the awareness of hazards and the introduction of appropriate risk management methods that things go wrong and we have a spill, leak, fire, explosion or potential for toxic impacts – this is why an entity must be prepared to deal with a variety of emergency scenarios dependent on the nature of their operations and activities.

The development and implementation of an EHSMS and compliance with the provisions of the EHS Manual (especially the CoP for Emergency Management) and the EPPs (especially that for Hazardous Materials) will go a long way towards preventing an emergency incident.

One of the fundamental principles within the Emirates EHSMS Framework is that persons (or entities) that generate pollution and/or waste, and or risks to health and safety will bear the costs of avoidance, abatement, containment, control, cleanup and/or remediation. Therefore there can be a considerable cost incentive for identifying all hazards and to be managing those risks appropriately, and part of this process is to have a well-developed and practiced Emergency Response Plan (ERP). The CoP provides advice on what should be considered in emergency preparedness and developing an ERP.

6. Code of Practice for Monitoring and Reporting

The purpose of this CoP is to establish a basic framework and general requirements for the systematic monitoring and reporting on environment, health and safety performance relevant to the nature of activities an entity undertakes and the hazards and risks inherent in those activities. Monitoring and reporting are very important components of any EHSMS. The overall aim of monitoring and reporting is to quantify and demonstrate progress towards goals and targets, and compliance with the Emirate’s EHS regulatory requirements.

The CoP provides advice and direction for air, water, noise, land, hazardous materials, waste, biodiversity and conservation, and occupational health and safety monitoring and reporting.

11.5 Emirate Environment, Health and Safety Protection Policies (EPPs)

11.5.1 EPP – Air

WHAT DOES THIS POLICY APPLY TO?

Management of:

- Ambient outdoor air environment for workers and the community;
- Indoor air environment of industrial sector workplaces and operations; and
- Indoor air environment of commercial and public buildings, schools, and hospitals.
- Emissions from all industrial sectors and associated activities;
- All mobile sources of emissions; and
- Emissions of greenhouse gases and ozone depleting substances.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of this Policy is that:

- Emissions to the air environment will be managed so that the beneficial uses of the air environment are protected, the Emirate's air quality goals and objectives are met, our air quality continues to improve and we achieve the cleanest air possible, having regard to the Emirate's social and economic development.
- Action to manage emissions to the air environment will be coordinated and integrated with other activities where appropriate so that workplace, indoor, neighbourhood, local and regional air quality is protected, global atmospheric issues are addressed, and the protection of other elements and segments of the environment are not compromised.
- Heavy metals, carcinogens, mutagens, teratogens and persistent organic pollutants (POPs) will be managed at source to achieve the best practicable outcome irrespective of the ambient levels due to the extremely hazardous nature of these pollutants.
- Proposals for new or substantially modified industrial

sources of emissions will be designed to minimize their operational impact. Cumulative impacts within regions will be major consideration in assessing potential operational impacts.

- Motor vehicles will be managed through the adoption of national emission control and fuel quality requirements, improving the in-service performance of motor vehicles, managing the overall level of motor vehicle use, facilitating the introduction of low emission technologies and fuels, and encouraging less polluting means of meeting transport needs.
- Air quality management will address all sources, including within the workplace and domestic sources.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Air quality indicators that will be used to monitor compliance with the Policy are:

- Class 1 Indicators associated with the protection of the well-being and amenity of the community.
- Class 1A Indicators are common or widely distributed ambient air pollutants that may threaten the beneficial uses of both local and regional air environments
- Class 1B Indicators are potentially hazardous substances emitted into the ambient air environment that may threaten the beneficial uses of the ambient air environment because of their toxicity, bioaccumulation or odorous characteristics
- Class 1C Indicators are potentially very hazardous substances emitted into the ambient air environment that are carcinogenic, mutagenic, teratogenic, highly toxic and/or highly persistent, and that may threaten the beneficial uses of the air environment
- Class 1D Indicators are indicators of the beneficial uses of the community's local amenity and aesthetic enjoyment, namely, odour
- Class 2 Indicators are associated with the health and safety of workers in industrial manufacturing and processing sectors (and associated activities) where potentially hazardous materials are used and/or created and emitted into the indoor or outdoor workplace environments.
- Class 2A Indicators for hazardous chemical substances emitted into the workplace.
- Class 2B Indicators for hazardous biological substances emitted into the workplace.

- Class 2C Indicators regarding extremely hazardous substances that are prohibited or require controlled release.
- Class 2D Indicators for hazardous dusts, particulates, and fibers emitted into the workplace.
- Class 3 Indicators apply to mechanically ventilated premises where air is introduced from outside and conditioned (i.e. dehumidified, heated, cooled, etc) and reticulated throughout a building or space with some fresh making up a required portion of the total air in circulation.
- Class 3A Indicators for gases normally present in air
- Class 3B Indicators for hazardous biological substances emitted into workplace air.
- Class 3C Indicators are desired environmental conditions within mechanically ventilated workplaces and public spaces.

Ambient air quality objectives are set out in Part 1 of the Standards and Quality Indicators section of the EHSMS Manual.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and or/the Regulatory Authority will consider requiring relevant entities to monitor the pollutant releases to air and the frequency of monitoring and indicators to be monitored.

11.5.2 EEPP – Water

WHAT DOES THIS POLICY APPLY TO?

This Policy applies to all Abu Dhabi waters.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of this Policy is:

- To reduce environmental harm and encourage efficient use of water resources in accordance with the principles of ecologically sustainable development by preserving quality of water resources;
- Promote the health, safety and welfare of the people of the Emirate of Abu Dhabi, and to protect the environment by establishing minimum standards for water quality;
- Encourage government and private sectors and the community to share responsibility for managing and

dealing with water;

- Encourage government agencies to ‘lead by example’ and share responsibility for managing and dealing with water;
- Ensure there is adequate funding for water and resource management planning programs and service delivery;
- Achieve integrated water and resource management planning, programs and service delivery on an Emirate wide basis;
- To assist in the achievement of the objectives of relevant laws; and
- Set and specify water quality guidelines and objectives to enhance or protect environmental values.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Water quality management indicators and quality objectives are summarised as follows:

- General quality indicators for waters that have a protected environmental value
- Provisions concerning activities involving pollutants to land
- Provisions for activities involving the release of pollutants other than contaminated storm water to surface water
- Provisions for activities involving the direct release of pollutants to groundwater
- Provisions for activities involving or likely to involve the incidental release of pollutants to groundwater.

Water quality standards are set out in the Part 2 of the Standards and Quality Indicators section of the EHSMS Manual.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or Regulatory Authority will consider requiring relevant entities to monitor the pollutant releases to water bodies and the frequency of monitoring and indicators to be monitored.

11.5.3 EEPP – Land

WHAT DOES THIS POLICY APPLY TO?

This Policy applies to the following land uses:

- Agricultural: consisting of rural areas involved in agricultural or horticultural practices;
- Sensitive use: consisting of land used for residential use, education institutions (e.g. schools), childcare facilities or health care facilities (e.g. hospitals);
- Recreation/Open space: consisting of general open space and public recreation areas;
- Commercial: consisting of a range of commercial and business activities;
- Industrial: consisting of utilities and a range of industrial activities; and
- Protected areas: consisting of protected areas and natural reserves by decree.

This Policy also applies to the management of levels of contamination in to:

- Land used for industrial purposes;
- Land used for agricultural activities; and
- Land used for sensitive uses such as educational and health institutions.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The Policy intends to maintain and enhance land quality by:

- Improving land condition to protect current and future beneficial uses of land from the detrimental effects of contamination by:
- Preventing contamination of land and;
- Where pollution has occurred, adopting management practices that will ensure prevention of unacceptable risks to human health and the environment and protection of beneficial uses through cleanup and / or otherwise management of contamination;
- Managing land so that the beneficial uses of the environment are protected, the Emirate's land management targets, goals and objectives are met; and discharge to land continue to be minimised with regard to the Emirate's social and economic development.
- Ensuring that the owner of land in the Abu Dhabi Emirate must prevent contamination and pollution of the land they own. Without taking away the responsibility of the polluter, the landowner will be responsible for the remediation or the management of contamination to ensure contamination is remediated

or managed. This will ensure the suitability of the land for its current use and will minimise harm to other segments of the environment.

- Remediating contaminated land to ensure there is no detrimental impact on the beneficial uses of other elements at the site or off-site.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Land quality indicators associated with the protection of well-being and amenity of the community include:

- Class 1A Indicators relating to general indicators and objectives of land quality. These include provisions for:
 - Landowners/Land custodians
 - Contamination remediation consultants
 - Government authorities
- Class 1B Indicators relating to activities that may generate contamination of land. These include provisions for:
 - Land owners
 - Government authorities
- Class 1C indicators relating to the management of contaminated land. These include provisions for:
 - Land contamination assessments
 - Remediation of contaminated land

Land standards are set out in Part 2 of the Standards and Quality Indicators section of the EHSMS Manual.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or the Regulatory Authority shall establish monitoring procedures and commence assessment and reporting.

11.5.4 EEPP – Noise

WHAT DOES THIS POLICY APPLY TO?

The Policy applies to the management of noise emitted from:

- Commercial and industrial premises
- Traffic

- All other sources of noise including activities near residential areas

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The Policy intends to:

- Manage noise emissions so that the beneficial uses of the environment are protected, the Emirate's noise targets, goals and objectives are met, and noise emissions continue to reduce with regard to the Emirate's social and economic development.
- Undertake actions to manage noise emissions and ensure coordination and integration with other activities where appropriate so that workplace, indoor, neighbourhood, local and regional noise levels are minimised.
- Manage noise from traffic sources and alarm systems.
- Manage noise within the workplace.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Noise quality indicators associated with the protection of well-being and amenity of the community include:

- Class 1 Indicators associated with the protection of health, well-being, and amenity of the community. These include:
 - Class 1A Indicators relating to general noise emissions;
 - Class 1B Indicators relating to noise emissions from specific sources. This includes noise emissions from:
 - Motor vehicles
 - Industrial facilities
 - Construction sites
 - Miscellaneous sources such as neighbourhood noise, noise from domestic waste collection, street sweeping machines, building alarm systems, and from cafes, shops, and restaurants.
- Class 2 Indicators associated with the protection of health, well-being, and amenity of employees in the workplace. This includes:
 - Class 2A Indicators for noise emissions in the workplace.

Noise standards are set out in Part 4 of the Standards and Quality Indicators section of the EHSMS Manual.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or Regulatory Authority must establish monitoring procedures and commence assessment and reporting of ambient noise levels.

11.5.5 EEPP – Waste

WHAT DOES THIS POLICY APPLY TO?

- The Policy applies to the management of all:
 - Hazardous wastes (solid, liquid and medical wastes);
 - Non-hazardous wastes (solid and liquid).
- The Policy applies to the minimization, generation, storage, handling, packaging, containment, labelling, transfer, transport, recovery, recycling, reuse, treatment and disposal of waste, and the prevention of litter.
- The Policy applies to all generators of wastes, in the form of liquids and solids, whether they are potentially hazardous or non-hazardous.
- The Policy applies to waste generated by the public and private sectors.
- The Policy applies to the permitting of waste management activities, recording and collection of waste data, and use of waste transport manifests.
- This Policy prohibits the throwing, treating, or burning garbage or solid wastes except in places designated for such purposes away from residential, industrial, and agricultural areas and the water environment.
- The Policy does not apply to wastes discharged to atmosphere in the form of gases, vapours, fumes, aerosols, dusts and particulates.
- This Policy does not apply to radioactive wastes which are covered by Law 1 of 2002 and Regulations as amended.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of this Policy is to:

- Advise waste generators to use the following waste management hierarchy when considering resource management options:
 - Avoiding unnecessary resource consumption
 - Recovering resources (including reuse, re-

processing, recycling and energy recovery)

- Containment
- Disposal
- Encourage government agencies to 'lead by example' and share responsibility for managing and dealing with waste.
- Achieve integrated waste and resource management planning, programs and service delivery on an Emirate-wide basis

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Indicators that will be used to monitor compliance with the Policy include Class 1 Indicators associated with the protection of the health, well-being, and amenity of the community. This includes:

- Class 1A Indicators relating to general waste management provisions. These include provisions for roles and responsibilities for:
 - Waste generators
 - Waste service providers (collectors/transporters of waste)
 - Waste management facilities
 - Government authorities
- Class 1B Indicators relating to specific waste management provisions including those for:
 - Hazardous wastes
 - Non-hazardous wastes such as
 - Industrial waste
 - Mixed solid waste
 - Solid inert wastes.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or Regulatory Authority shall establish monitoring procedures and commence assessment and reporting.

11.5.6 EEPP – Hazardous Substances

WHAT DOES THIS POLICY APPLY TO?

The Policy applies to the manufacture, import, supply,

transport, transfer, use, storage, handling, disposal, and management of all hazardous substances as defined in this Policy, all areas where hazardous substances are used, and all persons with the potential for exposure to hazardous substances in those areas.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of the Policy is to minimise the risk of adverse health effects due to exposure to hazardous substances in workplaces and into the environment by:

- Reducing environmental harm from improper generation and management of hazardous materials;
- Encouraging efficient use of resources in accordance with the principles of ecologically sustainable development;
- Enhancing the health, safety, and welfare of the people of the Emirate of Abu Dhabi by developing a comprehensive system for correctly identifying, classifying, and managing hazardous materials;
- Developing roles and responsibilities for manufacturers, importers, suppliers, employers, employees, and the community with regard to hazardous substances;
- Providing emergency services and relevant public authorities with the necessary information and unrestricted and immediate access to workplace and environmentally hazardous substances; and
- Enforcing measures to penalise individuals for non-compliance with the clauses stated in this Policy and associated regulations.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Indicators that will be used to monitor compliance with the Policy include Class 1 Indicators associated with the protection of the health, well-being, and amenity of the community. This includes:

- Class 1A Indicators relating to general provisions for managing hazardous substances. These include:
 - Roles and responsibilities of manufacturers, importers, and suppliers of hazardous substances.
 - Roles and responsibilities of employers and employees exposed to hazardous substances.
 - Roles and responsibilities of government authorities.

- Class 1B Indicators relating to specific provisions for the management of hazardous substances. These include provisions for:
 - Classification of hazardous substances
 - Communication of hazard information
 - Hazard communication tools
 - Storage and packaging
 - Documentation
 - Notification and reporting
 - Emergency management provisions.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/ or the Regulatory Authority shall establish monitoring procedures, and commence assessment and reporting.

11.5.7 EEPP – Occupational and Environmental Health and Safety (OEHS)

WHAT DOES THIS POLICY APPLY TO?

The Policy applies to all workplaces within Abu Dhabi Emirate.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of the Policy is to:

- Promote a safe and healthy work environment for people at work that protects them from injury and illness.
- Prevent and minimize a person's exposure to the risk of death, injury or illness caused by a workplace or work activities.
- To provide for consultation between employees and employers in achieving the aims of this Policy.
- To ensure that risk to health and safety at a workplace are identified, assessed and eliminated or controlled.
- To develop and promote community awareness of environmental and occupational health and safety issues.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

Indicators that will be used to monitor compliance with the Policy include:

- Class 1 Indicators associated with the roles and obligations of employers to protect the health and safety of the workers and the community. These include:
 - Requirements for provision of adequate training, instruction, information
 - Provision of adequate supervision
 - Provision of personal protective equipment
 - Access to workplace amenities and camps
 - Provision of emergency management and first-aid facilities;
- Class 2 indicators associated with roles and obligations of employees to protect the health and safety of themselves, their co-workers, and the community at the workplace;
- Class 3 Indicators associated with the requirements for consultation with employees;
- Class 4 Indicators associated with the assessment and management of occupational and environmental health and safety risks. These include requirements for:
 - Identifying occupational and environmental health and safety risks
 - Assessing occupational and environmental health and safety risks
 - Managing identified occupational and environmental health and safety risks
 - Reviewing risk assessment and control methods.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or Sector Regulatory Authority shall establish monitoring procedures and commence assessment and reporting.

11.5.8 EEPP - Biodiversity and Conservation

WHAT DOES THIS POLICY APPLY TO?

The Policy applies to all biodiversity and conservation activities within Abu Dhabi Emirate.

WHAT DOES THIS POLICY INTEND TO ACHIEVE?

The intent of the Policy is to:

- Protect ecosystems and biodiversity by establishing and managing reserves,
- Recognise and protecting ecological communities and promoting other conservation measures;
- Identify processes that threaten all levels of biodiversity and implement plans to address these processes;
- Specify provisions to enhance the protection, conservation and preservation of ecosystems unique to the Abu Dhabi Emirate;
- Promote a partnership approach to environmental protection and biodiversity conservation through:
 - Agreements with potentially impacting industries and activities; and
 - Conservation agreements with key land-holders; and
 - Involving the government and private sectors and the community in management planning.

WHAT INDICATORS AND QUALITY OBJECTIVES WILL BE USED TO MEASURE COMPLIANCE WITH THE POLICY?

The principles of ecologically sustainable development should be used in guiding the protection of ecosystems. These principles are:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- The principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and
- Improved valuation, pricing and incentive mechanisms should be promoted.

The Policy also includes specific indicators for monitoring

ecosystem health including:

- Class 1 Objectives which are general provisions to protect ecosystems comprising of lists of species currently protected within Abu Dhabi Emirate and requirements for Species Impact Statements;
- Class 2 Objectives concerned with the protection of marine areas.

WHAT ARE THE MONITORING AND REPORTING REQUIREMENTS FOR COMPLIANCE WITH THE POLICY?

The Competent Authority and/or Regulatory Authority shall establish monitoring procedures, and commence assessment and reporting.

The Competent Authority and/or Regulatory Authority shall work with the private and government sectors to encourage management of risks to biodiversity and conservation. This will assist in achieving the indicators and quality objectives.

WHAT ARE THE STANDARDS THAT I SHOULD COMPLY WITH IN THE EPPS?

Standards related to air, noise, water and land which are listed in EPPs, and which are part of applicable laws in the Emirate, are to be implemented. While standards acquired from international sources are considered advisory only until suitably reviewed and approved by the Competent Authority.

Further information concerning implementation programs

and transitional provisions are described in the full text of the EEPPs which are part of Abu Dhabi Emirate EHSMS Manual.

11.6 Sector Guidelines

The Government of Abu Dhabi Emirate is committed to protect and conserve the environment, and to protect and promote human health and safety for all inhabitants of the Abu Dhabi Emirate. To demonstrate the commitment, the Executive Council of Abu Dhabi Emirate approved the Abu Dhabi Environment, Health and Safety (EHS) Policy on 6 December 2006.

For implementing the EHS Policy, to ensure consistency across the Emirate and encourage entities to become self-regulating, the Government has established an EHSMS Framework. The framework requires all sectors / entities within a sector to establish and implement an EHSMS with the ultimate objectives being to minimize hazards and risks to the environment, and the health and safety of workers and the community; and to make continual progress towards sustainable development. The EHSMS developed by the entities of the seven targeted Sectors shall be submitted to the relevant Sector Regulatory Authority for approval.

WHAT ARE THE SEVEN SECTORS REQUIRED TO DEVELOP AND IMPLEMENT AN EHSMS?

The seven Sectors are:

- Health;
- Oil and Gas;
- Industry;
- Tourism;
- Transport;
- Energy; and
- Building and Construction.

WHO WILL BE INVOLVED?

The Sector Technical Committees will identify major entities to lead the way in the development and implementation of their EHSMS. Smaller entities can adapt these EHSMS approaches and tailor them to suit their own needs. This will ensure that the benefits of EHSMS as envisioned in the EHS Policy are realized throughout each Sector.

WHEN SHOULD THE ENTITIES DEVELOP AND IMPLEMENT THEIR EHSMS?

Each sector will have a generic EHSMS that identifies common issues to be addressed in all projects and activities. Once the generic EHSMS has been developed, it can form the basis for project and organization-specific EHSMSs. The EHSMS will give each entity advice and guidance on implementing the EHSMS 'on the ground' on projects, particularly in the stages of project start-up, routine operations, maintenance and improvement, non-routine operations and emergency management.

WHAT EHS ISSUES WILL THE SECTOR AND ITS ENTITIES EHSMS ADDRESS?

All entities are responsible for ensuring that potential environment, health, and safety hazards have been identified, the risks assessed, and mitigation and control measures established. The EHS impacts and hazards are somewhat different among the different Sectors and entities within and they also depend upon the scale of operation and the activities of the organization. In general, the environmental impacts are associated with air, water, noise, waste, land, flora and fauna; whereas the occupational health and safety hazards are physical (e.g. falling from height), chemical (e.g. poisons) and biological (e.g. occupational diseases).

WHAT MUST I DO NOW?

Each entity must implement an EHSMS as part of their operational activities by:

- Developing an EHS policy that establishes the framework for developing and implementing an EHSMS within your entity;
- Identifying key EHS aspects within your entity and developing plans to mitigate and manage the identified impacts;
- Developing monitoring mechanisms that will check how well the EHSMS plans are being implemented;
- Creating systems for reporting the results of implementing the EHSMS plans and areas of improvement to management, the Regulatory Authority and the Competent Authority.

12 Annex 2: Federal and Local Environmental Laws

SN	Federal/Abu Dhabi Emirates Law
1	Law No. (5) of 1970 concerning Hunting as amended by Local Law No. (1) of 1978.
2	Federal Law No. (1) of 1972 concerning Jurisdiction of Ministries and Authorities vested in Ministries, as amended.
3	Law No. (12) of 1973 concerning Petroleum Ports.
4	Law No. (8) of 1978 concerning Conservation of Petroleum Resources
5	Federal Law No. (1) of 1979 concerning Organization of Industrial Affairs.
6	Federal Law No. (3) of 1979 concerning Civil Defence and its amendments.
7	Federal Law No. (5) of 1979 concerning the Agricultural Interdiction.
8	Federal Law No. (6) of 1979 concerning Veterinary Quarantine.
9	Federal Law No. (8) of 1980 concerning Regulation of Working Relations.
10	Federal Law No. (21) of 1981 concerning Establishment of the General Authority for Water Resources Management in UAE. (not implemented)
11	Federal Law No. (26) of 1981 concerning the Commercial Marine Law as amended.
12	Federal Law No. (27) of 1981 concerning Control of Communicable Diseases.
13	Decree by Law No. (9) of 1983 concerning Regulating the Hunting of Birds and Animals in UAE.
14	Federal Law No. (3) of 1987 concerning Penal Code.
15	Law No. (4) of 1989 concerning the Establishment of the National Avian Research Centre (NARC).
16	Federal Law No. (3) of 1992 concerning the Issuance of the Penal Law.
17	Federal Law No. (35) of 1992 concerning the Code of Criminal Procedures.
18	Federal law No. (38) of 1992 Regarding the establishment of Nurseries and regulating Production, Imports and Circulation of Seedlings.
19	Federal Law No. (39) of 1992 concerning the Production, Importation and Handling of Fertilizers and Agricultural Conditioners and its Executive Order issued by Ministerial Decree No. (98) of 1993 and its amendment No. (573) of 1998.
20	Federal Law No. (41) of 1992 concerning Agricultural Pesticides and its Executive Order issued by Ministerial Decree No. (97) of 1993.
21	Federal Law No. (7) of 1993 concerning the Establishment of the Federal Environmental Agency and its amendments (Federal Law No. (30) of 2001 and (20) of 2004).
22	Federal Law No. (19) of 1993 concerning Marine Areas (maritime zones) in UAE.

23	
24	Federal Law No. (23) of 1999 concerning Exploitation, Conservation, and Development of Living Aquatic Resources in the United Arab Emirates.
25	Federal Law No. (24) of 1999 concerning Protection and Development of the Environment as amended, and Council of Ministers Decrees No. (37) of 2001 and No. (12) of 2006 concerning the Executive Order of Federal Law No. (24) of 1999 which includes the following Regulations: • Environmental Impact Assessment of Projects. • Handling of Hazardous Substances, Hazardous Wastes and Medical Wastes. • Protection of the Marine Environment. • Agricultural Pesticides and Fertilizers. • Protection of Air from Pollution. •
26	Federal Law No. (1) of 2001 concerning Safeguarding UAE Terrestrial and Marine Borders.
27	Federal Law No (1) of 2002 concerning Regulation and Control of the Use of Radioactive Sources and Protection against its Hazards as amended.
28	Federal Law No. (11) of 2002 concerning the Regulation and Control of International Trade in Endangered Species of Wild Fauna and Flora and its Executive Order No. (22) of 2003.
29	Law No. (13) of 2005 concerning Regulation of Grazing in Abu Dhabi Emirate and its Resolution issued in 2006.
30	Law No. (16) of 2005 concerning the Responsibilities of the Environment Agency of Abu Dhabi. (Replaced Law No. (4) of 1996 concerning Establishment of Environmental Research and Wildlife Development Agency and its amendments).
31	Local Law No. (21) of 2005 for Waste Management in Abu Dhabi Emirate.
32	Local Law No. (22) of 2005 concerning Animal Hunting in Abu Dhabi Emirate.
33	Federal Law No. (20) of 2006 amending Articles (1), (2), (3) and (8) in Federal Law No. (1) of 2002 concerning Regulation and Control of the Use of Radioactive Sources and Protection against its Hazards.
34	Federal Law No. (11) of 2006 on amendments related to Federal Law No. (24) of 1999 Federal Law No. (20) of 2006 on amendments related to Federal Law No. (1) of 2002.
35	Law No (6) of 2006 concerning the Management of Groundwater Well Drilling

Federal/Abu Dhabi Emirate Decrees

36	Council of Ministers Decree No. (5) of 1998 concerning banning the use of marine barges and tankers and ships as floating storage areas in transport or storage of oil.
37	Council of Ministers Decree No. (23) of 2001 concerning the protection of ports, shores, and maritime territory from oil pollution incidents.
38	Council of Minister's Decree No. (37) of 2001 concerning the Executive Order of Federal Law No. (24) of 1999.
39	Council of Ministers Decree No. (39) of 2006 concerning the banning of importation, production, and use of asbestos sheets.
40	Emiri Decree No. (14) of 2006 pertaining to Restructuring EAD's Managing Board.

41	Council of Ministers' Decree No. (33) and (34) of 2006 pertaining to Endorsing Standards for UAE
42	Council of Ministers' Decree No. (29) of 2006 pertaining to Utilization of Ships and Marine Vessels as Floating Storage Units in Oil Products Storage or Transportation.
43	Council of Ministers' Decree No. (186) of 2006 pertaining to Banning of fishing and / or marketing BADAH Fish in Abu Dhabi Between 1 April and 1 June 2007.
44	Council of Ministers' Decree No. (12) of 2006 concerning the Executive Order of Federal Law No. (24) of 1999.
45	Council of Ministers' Decree No. (13) of 2006 pertaining to Endorsing the National Plan for Combating the Avian Influenza in UAE.
46	Federal Decree No. (9) of 2007 pertaining to Fertilizers and Agricultural Nomenclature in the GCC Countries.
47	Federal Decree No. (10) of 2007 pertaining to Pesticides in the GCC Countries.
48	Federal Decree No. (11) of 2007 pertaining to UAE Joining RAMSAR Convention on Wetlands.
49	Federal Decree No. (395) of 2007 pertaining to Reformulation of Working Groups for Inspection of Fish Farms and Monitoring Veterinary Medicine Residuals and Environmental Pollutants.
50	Council of Ministers' Decree No. (18) of 2008 pertaining to Endorsing Standards for UAE
51	Vice President's Decree No. (31) of 2008 pertaining to Formulation of Managing Board for International Fund for the Preservation of Houbara Bustards.
52	Executive Council's Decree No. (29) of 2008 pertaining to the Formulation of Managing Board for Regulation and Supervision Bureau of Water and Electricity Sector.
53	Council of Ministers Decree No. (7/47) of 1999 concerning banning of the production of pesticides in free zones of the country.

13 Annex 3: International and Regional Environmental Conventions & Protocols

Date Ratified / Accession	Agreements (MOUs, Protocols, Conventions)	Type	Description
	UNEP-DEC	Global Agency	General Links to International environmental treaties
	ENTRI-CIESIN	Global Agency	General Links to International environmental treaties - database
	WRI Earth Trends Portal - Environmental governance and Institutions	Global Agency	See Category - Environmental Governance and Institutions SEARCHABLE DATABASE
	National Commission for Wildlife Conservation and Development (NCWCD) Kingdom of Saudi Arabia	MOU	MOU subject: Collaboration on the Houbara bustard captive breeding programme. Deliverables: By the NCWCD providing 50 houbara chicks, EAD will fund research and apply cryopreservation of houbara semen, veterinary diagnostic services and DNA sexing techniques.
	Environment and Protected Areas Authority (EPAA) Sharjah	MOU	MOU subject: Collaboration between agencies. Deliverables: Cooperation involves efforts in CITES, wildlife conservation efforts through the CAMP programme. Red Data List projects and assistance in conservation work for the Arabian Tahr.
	National Environmental Strategy for Water Resources		Abu Dhabi Executive Decisions No. (14) Session 8/2005 and No. (4) Session 17/2005 commissions EAD to carry out an assessment of ground water resources and authorized the EAD to establish a unit for regulating permits of ground water utilization.
	Iranian Fisheries Research Organization (IFRO)	MOU	MOU subject: Cooperation in the fields of fisheries and marine environment Deliverables: Both parties will cooperate towards development of a strategy to ensure sustainable conservation, management and utilization of living marine resources which are under the jurisdiction of both parties while emphasizing shared and transboundary species
	Ministry of Tourism and Environment (Environmental Protection Authority) Republic of Yemen	MOU	MOU subject: Collaboration on wildlife and biodiversity conservation. Subject includes field studies and surveys, training and capacity building, in-situ/ex-situ conservation of the Houbara bustard, exchange of information, education and environmental awareness. Deliverables: Training in the field of wildlife conservation.
1974	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LDC), 1972	International Convention/ Protocol	Prevention of Marine Pollution by Dumping of Wastes and Other Matter
1979	Kuwait Regional Convention for cooperation on the protection of the marine environment from pollution, 1978	Regional Convention	Kuwait Regional Convention for cooperation on the protection of the marine environment from pollution

1983	International Convention for the Safety of Life at Sea (SOLAS), 1974.	International Convention/ Protocol	Safety of Life at Sea
1983	United Nations convention on the Law of the Sea (UNCLOS) for the year 1982.*	International Convention/ Protocol	Laws governing roles and responsibilities of coastal nations, etc.
1983	International Convention for the Prevention of Pollution of the Sea by Oil, 1954 and its amendments.	International Convention/ Protocol	Prevention of Pollution of the Sea by Oil, 1954 and its amendments.
1983	International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION), 1969.	International Convention/ Protocol	Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties
1983	International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969.	International Convention/ Protocol	Civil Liability for Oil Pollution Damage
1989	Vienna Convention for the Protection of the Ozone Layer of 1985 and Montreal Protocol on Substances that Deplete the Ozone Layer of 1987.	International Convention/ Protocol	Protection of the Ozone Layer of 1985 and Montreal Protocol on Substances that Deplete the Ozone Layer of 1987.
1990	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973.	International Convention/ Protocol	International Trade in Endangered Species of Wild Fauna and Flora
1990	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal, 1989.	International Convention/ Protocol	Control of Transboundary Movements of Hazardous Wastes and their disposal
1990	Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf, 1989	Regional Convention	Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf
1990	Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources, 1990*.	Regional Convention	Protection of the Marine Environment against Pollution from Land-Based Sources
1995	United Nations Framework Convention on Climate Change for the year 1992.	International Convention/ Protocol	Framework Convention on Climate Change for the year 1992.

1997	1992 Protocol Concerning Amendments on International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969 and International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971.	International Convention/ Protocol	Civil Liability for Oil Pollution Damage (CLC), 1969 and International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971.
1997	Convention on Limitation of Liability for Maritime Claims (LLMC), 1976.	International Convention/ Protocol	Limitation of Liability for Maritime Claims
1998	United Nations Convention to Combat Desertification for the year 1994.	International Convention/ Protocol	Convention to Combat Desertification for the year 1994.
1999	Convention on Biological Diversity for the year 1992.	International Convention/ Protocol	Biological Diversity for the year 1992.
2001	Emirates Wildlife Society in Association with World Wide Fund for Nature (EWS-WWF)	MOU	Subject of MOU: Protection of natural environment, promotion of conservation awareness among people of UAE, establishment and/or advocacy for environmental policies and institutional capacity building. Deliverables: Establishment of Protected Areas, Provision of expert support to Government institutions, education and awareness campaigns, publication of key research findings and reports, conducting workshops and seminars.
2002	Convention on Persistent Organic Pollutants (POPS), 2001.	International Convention/ Protocol	Persistent Organic Pollutants (POPS)
2002	Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention), 1998.	International Convention/ Protocol	Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention), 1998.
2002	Diwan of the Royal Court, Office of the Advisor for Conservation of the Environment (ACE) Sultanate of Oman	MOU	MOU subject: Houbara Conservation Deliverables: Training of the ACE staff on various techniques of survey.

2002	December 2002, resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005-2014) was adopted by the United Nations General Assembly and UNESCO was designated as lead agency for the promotion of the Decade.	International Convention/ Protocol	December 2002, resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005-2014) was adopted by the United Nations General Assembly. Shares information about the United Nations Decade of Education for Sustainable Development. It also explains the concept of sustainable development endorsed at the World Summit on Sustainable Development (WSSD) (Johannesburg, 26 August to 4 September 2002). The concept of education for sustainable development and its relationship with Education for All (EFA), the United Nations Literacy Decade (UNLD) and the Millennium Development Goals (MDGs) is clarified. These illustrate that quality education is a prerequisite for education for sustainable development at all levels and in all modalities of education.
2003	The National Agency for Wildlife Protection Kingdom of Bahrain	MOU	MOU subject: Coordination in capacity building and exchange of experiences Deliverables: Coordination in all environmental fields such as environmental strategies, environmental protection research and wildlife protected areas.
2003	Convention on Conservation of Wildlife and its Natural Habitats in the GCC countries	Regional Convention	Conservation of Wildlife and its Natural Habitats in the GCC countries
2005	Protocol on the Control of Marine Transboundary Movements and Disposal of Hazardous Wastes and Other Wastes, 1998.	Regional Convention	Control of Marine Transboundary Movements and Disposal of Hazardous Wastes and Other Wastes
2005	Montreal Protocol Amendments (London 1990, Copenhagen 1992, Montreal 1997, Beijing 1999) on control of ozone depleting substances.	International Convention/ Protocol	Montreal Amendments (London 1990, Copenhagen 1992, Montreal 1997, Beijing 1999).
2005	Kyoto Protocol, 1997	International Convention/ Protocol	Kyoto Protocol, 1997
2005	International Center for Biosaline Agriculture (ICBA)	MOU	MOU subject: Environmental and agricultural activities Deliverables: The MOU facilitates the collaboration in environmental and agricultural activities.



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