



# Hotels' environmental management systems (ISO 14001): creative financing strategy

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## Abstract

**Purpose** – Environmental concerns have been increasing in the travel industry. However, most hotels are unwilling to develop an international environmental management system (EMS) probably due to a lack of resources and knowledge. In order to encourage more organizations to take part in the EMS, three cases adopting international EMS are investigated to ascertain the ways to support the formation of EMS. Based on their experience, hoteliers are encouraged to team up with green members to apply for research funding for the investigation and implementation of EMS. Also, “energy performance contracting” methods to finance environmental improvement projects in hotels were also discussed.

**Design/methodology/approach** – A single case study approach was adopted to illustrate the differences in the resources mobilization for setting EMS in these three hotels. A search of documentary evidence and interviews with hotel staff was the main instrument for data collection.

**Findings** – The Shangri-la Hotel used its own resources to set up its EMS and strategically used its developed template for other hotels in the group to follow. The other two hotels, Nikko and Grandstanford, adopted a creative and “non-balance sheet” approach to mobilize resources for the formation of EMS. Both hotels have recourse to external resources including a university’s engineering department, hotel management school, green bodies, government funds and trade associations to develop and implement the EMS. The study further identified energy performance contracting as another promising financing tool for the implementation of the energy-related part of the EMS.

**Research limitations/implications** – The representative and general nature of the findings are limited to large hotels in metropolitan areas, as the three case hotels are located in the metropolis of Hong Kong.

**Practical implications** – The findings provide informative details on how to secure external resources to set up internationally recognized environmental management systems and the safe way for hotel operators to trial use energy-saving facilities.

**Originality/value** – This study provides indications and details on some creative financing techniques for setting up EMS in hotels. These financial strategies are the first of their kind in print and can serve as a useful reference for hotels to develop international EMS.

**Keywords** Environmental management, Hotels, Financing

**Paper type** Case study

## Introduction

Many efforts on environmental protection work in hotels in the 1990s were a continuation of some long-standing environmental concerns such as energy

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conservation, sewage discharge, air and noise pollution that occurred over the past few decades (Stipanuk, 1996). Coupled with this development have been the growing concerns for a “green” hotel in the eyes of customers. A study indicated that 75 percent of interviewed customers claimed that they were environmentally-minded consumers and would choose hotels which showed concern for the environment (Feiertag, 1994). Also, Cook *et al.* (1992) pointed out that business in the travel industry was required to adapt to new environmental realities and to implement environmental policies and strategies.

In 1995, a comprehensive environmental action checklist and action development guide for small and medium-sized hotels was jointly published by international hotel and environmental associations (International Hotel and Restaurant Association, 1995). This publication provided hotels with more detailed information to launch environmental management systems (EMS). Under these circumstances, EMS, as across the world, has recently become more recognized in the hotel industry. Almost all hotels have implemented their in-house EMS with varying degrees of intensity. Kirk’s survey found that the most significant benefit of environmental management was the improvement in public image and better relationships with the local community (Kirk, 1995).

However, many hoteliers with written environmental policies saw the greatest benefit in financial management performance.

Thus, to implement the EMS, the first step is to have a clear environmental policy, objectives, targets and good planning. To further enhance effectiveness, hoteliers should always monitor and review the system after the implementation. However, due to resource limitations, many hotels’ environmental efforts pause after they have taken some environmental actions such as implementation of water saving campaign, installation of energy-efficient lighting, reuse of waste paper and other initiatives. Recent ISO 14000 series provides an effective guideline on the content of EMS, auditing, environmental performance evaluation and so on, as shown in the appendix. Among them, ISO 14001 documents all essential elements in the EMS as shown in Table I. Most importantly, a successful EMS requires a lot of resources, including manpower, cost and time for planning (Sayre, 1996).

The costs arising from the implementation of ISO 14001 include those associated with initial set-up, maintenance and improvement (Chin *et al.*, 1998). The cost of initial set-up refers to all costs associated with the provision of hardware and software facilities, plus tools for establishing the system in compliance with the ISO 14000 EMS standards. Specifically this category of cost involves the purchase of monitoring and measuring equipment, documentation processing and storage equipment/accessories, hiring specialist environmental assistance, initial staff training, computer software as well as staff recruitment.

Added to the cost pool is the financing of maintenance and improvements. This category of expenditure refers to the costs of maintaining and continually improving the EMS in the company so that optimum environmental performance can be achieved with the changing environmental conditions and requirements. It also includes the costs associated with ongoing staff training, environment equipment replacement and upgrading, periodic environmental auditing and third-party certification and so forth.

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1. Environmental policy
  2. Planning
    - 2.1 Environmental aspects
    - 2.2 Legal and other requirements
    - 2.3 Objectives and targets
    - 2.4 Environmental management program(s)
  3. Implementation and operation
    - 3.1 Structure and responsibility
    - 3.2 Training, awareness and competence
    - 3.3 Communication
    - 3.4 Environmental management system documentation
    - 3.5 Document control
    - 3.6 Operational control
    - 3.7 Emergency preparedness and response
  4. Checking and corrective action
    - 4.1 Monitoring and measurement
    - 4.2 Non-conformance and corrective and preventive action
    - 4.3 Records
    - 4.4 Environmental management system audit
  5. Management review

**Table I.**  
ISO 14001 environmental  
management system  
elements

**Source:** Fredericks and McCallum (1998)

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In addition, EMS certification costs at least HK\$100,000 (about US\$13,000) should also be budgeted (Anon, 1996). The cost is paid to the certifying body, which would examine whether the hotel has fulfilled all the necessary conditions of international EMS standard ISO 14001.

However, most organizations lack the knowledge, experience and expertise required to develop an EMS and many are unable or unwilling to commit the required staff and financial resources to undertake this development (Chapman, 1997). Earlier studies also found that lodging customers in the US are not willing to pay extra to support environmental policies (Watkins, 1994; Jaffe, 1993). However, some hotels launched pilot schemes to encourage guests to contribute to local environmental schemes (Green, 1995). Though new international EMS standard ISO 14001 certificates in Hong Kong have recently been obtained by several hotels, the progress on industry-wide adoption is still slow. The phenomenon is not just confined to Hong Kong. Pryce (2001) highlighted, according to a Pricewaterhouse Coopers' report, that only 40 percent of large hotel groups surveyed in Europe had a formal EMS and only one was externally verified. Pryce (2001) further quoted the results of a survey of small and medium-sized hotels in three UK countries and pointed out that none of these hotels had implemented a formal EMS. Thus, it is valuable to understand how environmental pioneers in the hotel sector, Shangri-la, Nikko and Grandstanford set up their EMS under resource constraints. Especially after the Asian financial crisis, 9/11 event and SARS, the resources available to the hotel sector appear to be less than before.

Therefore, the principal objective of the study is to identify and analyze the ways that these hotels mobilize resources to establish EMS up to ISO 14001, especially any creative and non-conventional financing (that is neither debt or equity issues, nor borrowing or requesting funds from the hotel owners).

### Methodology

The approach adopted in the study is close to action research, using case studies that aim to explore the rich background of the cases. As the purpose of this study is to explore the variations in environmental management systems and its associated financing measures, the study adopted a non-traditional case selection criterion. Decisions are based on which case studies provide the most fruitful data for the research question (Doyle, 2003) or provide the most “opportunity to learn” (Stake, 2000). In addition, the investigating topic is new and falls into the “timing in the early stages of the field”, studies of individual cases are particularly suitable (Eisenstadt, 1991). These single cases have been used to offer vivid, powerful and penetrative descriptions of events, relationships, and ways of working that are not captured by existing theories (Cunningham, 1997; Crane, 1998; Dyer and Wilkins, 1991). To analyze these cases strategically, a descriptive framework consisting of search of documentary evidence and interviews with hotel staff of the hotels studied was developed to organize case studies. The documentation encompasses hotel EMS manual, university’s published reports, fund application documents, periodicals, and hotel reports. The total number of interviewees is 14 including one owner representative, two general managers, one resident manager, three chief engineers, four green managers or quality assurance managers and three departmental head’s assistants.

### Shangri-la case

The island Shangri-la hotel is a five-star hotel located at the top of a large shopping complex near Central Hong Kong, and with 565 rooms and seven catering outlets. In September 1996, it started the process of developing an EMS and soon became the first hotel in Asia to obtain ISO 14001 certification. Its prompt development of EMS up to international standards is based on its existing “best practice” in each department. The EMS brings significant benefits – reputation and competitive edge – to the hotel and these benefits have always outweighed the cost (Tsai *et al.*, 2003).

In general, the funding sources of most large business are mainly derived from equity and debt issues. For Shangri-la’s environment management system, it most likely came from internal resources of the group (Tan, 2004). A further investigation of the group’s annual reports indicate that, apart from funds originating from regular income, the group issued convertible bonds with the total principal amount of US\$258 million with interest at the rate of 2.875 percent per annum. This implies that financing for environmental works should not just be limited to equity financing, reserve and income fund. Funds available from debt financing can also be considered as an alternative.

The successful ISO 14001 certification in Hong Kong’s Island Shangri-la hotel provides a model for the groups’ other hotels to set up environmental management systems and its certification. An environmental management manual was also developed to address the immediate and long-term environmental impact of hotel

operations. In addition, an environmental consultant was hired to inspect hotels to ensure not merely that the EMS is being maintained but that continual environmental improvement is achieved by setting new environmental goals (Shangri-la Hotels Group, 2005).

Therefore, Shangri-la's certification in Hong Kong can be regarded as a pilot practice and reusable resource for further development of EMS in the group's other hotels that do not have a proper EMS.

### **Nikko's case**

Hotel Nikko Hongkong (Nikko) is a member of Nikko Hotels International, with headquarter in Tokyo, Japan. The hotel continues the tradition of Japanese hospitality, which is renowned throughout the world. Opened in April 1988, Hotel Nikko Hongkong is a five-star deluxe hotel in Hong Kong, with 462 rooms. The hotel is located at Tsim Sha Tsui East overlooking Victoria Harbour in Hong Kong.

Environmental protection has always been at the heart of the philosophy of Nikko. Even as early as 1992, the hotel was pushing for environmental improvements by implementing energy and water conservation practices throughout the hotel. As soon as the green practices on water and energy were on track, the hotel started looking for ways to minimize waste production (Hotel Nikko Hongkong, 1999). Over the past years, the management and staff of Nikko have continued through different stages of improvement on the environment.

Nikko is the leader in implementing EMS in the Hong Kong hotel industry. The environmental management system (based on the ISO 14001 standard) of Nikko was set up in April 1999 (Hotel Nikko Hongkong, 1999). However, before Nikko's completion of EMS implementation, Nikko did face many difficulties and had spent tremendous efforts on environmental protection. Among these, resources and financial support are the main concerns in launching an EMS campaign. Operating budgets may not allow hoteliers the extravagance of calling in expert consultants to set up the environmental system. While operating budgets were tight, Nikko from 1992 sought help from community bodies such as academic institutions and government departments (Department of Building Services Engineering and Hotel Nikko Hongkong, 1996).

### *Partnership with community bodies*

Over the past years, Nikko developed a cohesive partnership with outside bodies in implementing its EMS. The collaborating partners of Nikko are categorized as four types. These include educational establishments, green bodies, government's departments as well as the industry council. Collaboration with community bodies is one way to reduce costs of research and enables hotels to acquire funds for ongoing environmental work.

Figure 1 shows the relationship between Nikko and its partners, plus the contribution of these partners in supporting Nikko's environmental endeavors. Nikko has gained support and recognition from partners such as the Hong Kong Hotel Association (HKHA), government's Industry Department (ID), Friends of the Earth and other environmentally-friendly enterprises. With the help of those partners, Nikko has successfully solved resource-oriented problems in launching the hotel's environmental activities and eventually obtained the ISO 14001 certificate.

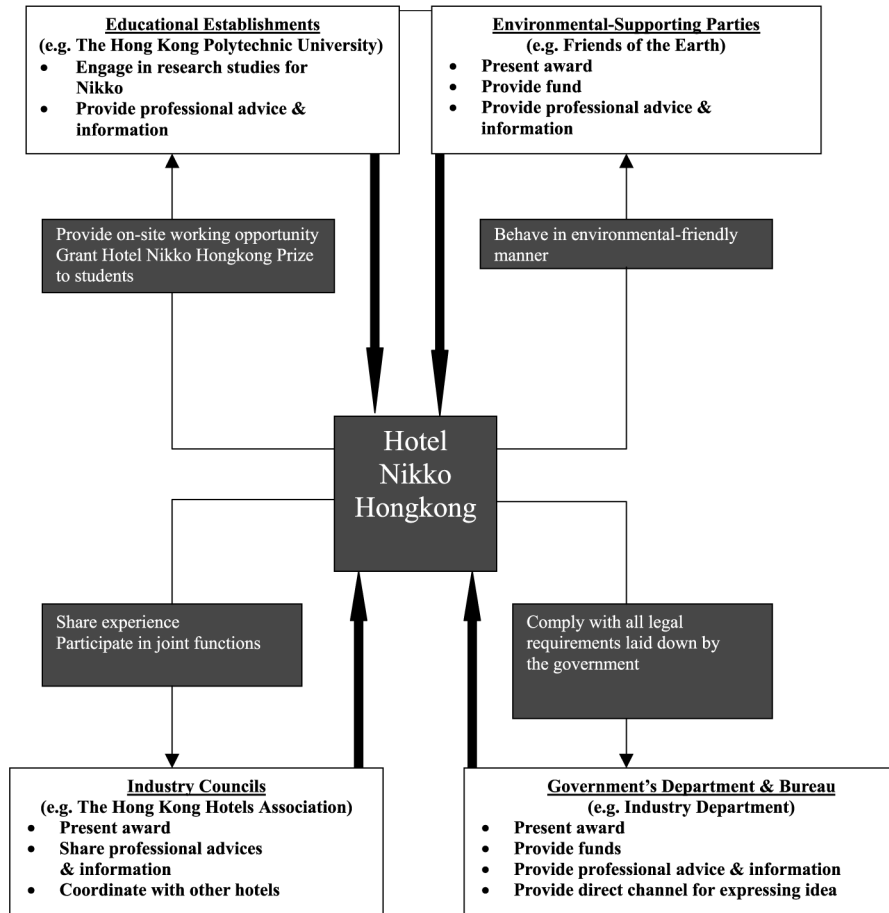


Figure 1. Relationship in partnership of Hotel Nikko Hongkong

*Educational establishments*

The major educational partner of Nikko is the Department of Building Services Engineering of The Hong Kong Polytechnic University. Table II shows various projects or publications conducted by the educational department in improving many aspects of Nikko's EMS. As can be seen from Table II, most of the student-assisted research focused on evaluating the performance of environmental improvement that required a significant resource.

The ex-GM said that collaboration with universities was a program of mutual benefits. On the side of universities, students might have on-site working opportunity provided by Nikko whilst professors might use Nikko as a test case. For Nikko, the hotelier might save a huge amount of research costs, as most of the research work is unpaid. Besides, the University's School of Hotel and Tourism Management and Hong Kong University of Science and Technology's (HKUST) Institute for Environmental Studies also lend their effort in supporting the hotel's environmental pursuits. The former assisted in the compilation of the energy and water conservation guide and the

**Table II.**  
Joint projects  
collaborated by Nikko  
and the Department of  
Building Services  
Engineering of the Hong  
Kong Polytechnic  
University

Student research project 1998-2000

1. Indoor air quality study
2. Review of building labeling scheme – checking compliance with energy efficiency codes
3. Parameter setting for boiler and chiller data log – calibration of equipment
4. Air flow balance and distribution in hotel food and beverage outlets
5. Indoor air quality survey
6. Opportunities for energy efficient lighting retrofit
7. Study of power factor and distribution losses

Publications 1996 and 1998

1. *Keeping Hong Kong's Hotel Industry Competitive into the Twenty-first Century – Environmental Management Systems for Hotels*. With overall objective helping the Hong Kong hotel industry to be more competitive and profitable and, at the same time, reduce adverse environmental impacts
2. *A Guide to Energy and Water Conservation in Hotels*. Aimed to contribute to reduce energy and water consumption in all hotels, contributing to their profitability whilst helping to protect the environment for future generations. Based on a number of energy and water conservation projects carried out in hotel buildings in Hong Kong, but particularly the extensive range of projects at Hotel Nikko Hongkong

**Source:** Hotel Nikko Hongkong (1999)

latter was involved in bidding for a HK\$1 million fund (around US\$130,000) for developing an EMS template for hotels. As such, the hotel's environmental performance and operating efficiency would increase. This partnership creates a win-win situation.

#### *Environmental-supporting parties*

Nikko has set up a cohesive partnership with parties endorsing environment conservation. Friends of the Earth Association supports Nikko's efforts in saving energy and improving environmental performance. The parties provided Nikko with the latest environmental information related to the hotel industry and shared their professional ideas or recommendations with Nikko. In this way, Nikko saved costs in information collection and expert consultancy. Furthermore, the environmental-supporting groups usually give recognition to environmental-friendly businesses, including Nikko, with outstanding performance. The award is not merely a simple recognition of effort in environment conservation, but also adds to their reputation and can become a strong stimulus to push environmental conscious visitors choosing Nikko.

#### *Government departments*

In 1997, Nikko received the Energy Efficient Building Award 1997 from the Planning, Environment and Lands Bureau. In 1998, Nikko further joined with other partners and successfully obtained HK\$1 million from the Industry Support Fund of the Industry

Department for a project entitled “Keeping Hong Kong’s hotel industry competitive into the twenty-first century – environmental management systems for hotels”. The project aimed to develop an EMS template for the local hotel sector. Apart from awards and funds, cohesive linkage with governments and bureaus also enable Nikko to have up-to-date environment-related legislation data more easily, and express its ideas more directly to government officials.

#### *Industry councils*

Hotel Nikko plays an active role in sharing experiences and participating in projects proposed by the local hotel association, the Hong Kong Hotel Association (HKHA). In return, Nikko receives relevant environmental information from other member hotels of the association. The association also assisted Nikko by assigning its Environmental Committee to take up an advisory role in the above-mentioned EMS template development. In addition, the association also helped in translating the *Guide to Energy and Water Conservation in Hotels* developed by Nikko into Chinese by introducing Zhengzhou Holiday Inn and Zhengzhou Crowne Plaza to aid the translation.

Nikko’s endeavor and effort was further recognized by international industry councils. In 1995, the International Hotels and Restaurants Association granted Nikko the award “Corporate Green Hotelier of the Year 1995”. The award further identifies Nikko as a successful leader in the global green hotel movement.

#### **Inter-continental Grand Stanford**

Grand Stanford is a waterfront five-star hotel located in Tsim Sha Tsui East. It has 579 rooms and four food and beverage outlets. The hotel was managed by Holiday Inn in the 1980s and by the owner’s management company in the 1990s.

The resources available to the development of ISO 14001 EMS in Inter-continental Grand Stanford mainly include Nikko’s experience, the government funded scheme of hotel environmental system, and university’s assistance (Chan, 2005). Thanks to Nikko generous sharing of ISO 14001 certification experience and the data required for setting up an EMS, Grand Stanford’s senior management embarked on the development of EMS under ISO 14001 version in the early 2000s. Besides Nikko’s experience, Grand Stanford also benefits substantially from the government funded scheme about the environmental assessment of the hotel buildings. The scheme includes the development of a number of environmental assessment manuals for different phases of hotels – project, new building and existing building. In addition, Grand Stanford also acted like Nikko in the past by co-operating with nearby university to conduct a number of measurements for environmental performance indicators. Apart from these external resources, Grand Stanford also progressively employed internal funds to install energy-saving facilities including heat pumps for the hot water system and solar-control film for windows.

#### **Implications**

Based on the investigation of these three cases, the study summarized the similarities and differences in their approaches. As shown in Table III, all these hotels have strong partnerships with green bodies and have been involved in sharing experience with trade association, other hotels and government. Two hotels were also found to have strong collaboration with a university’s engineering department and hotel school. The



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**Table III.**  
Similarities and  
differences in approaches

	Nikko	Shangri-la	Grand Stanford
<i>Collaborate with university's:</i>			
1. Engineering department	×		×
2. Hotel school	×		×
<i>Partnership with environmental supporting parties</i>	×	×	×
<i>Written support to apply:</i>			
1. Government fund	×		×
2. Private fund	×		
<i>Free EMS template</i>			×
<i>Sharing experience from:</i>			
1. Trade association	×	×	×
2. Other hotels	×	×	×
3. Official department	×	×	×
<i>Internal reserve or debt issue</i>		×	×

former provides technical expertise and the latter provide operational knowledge in the environmental projects in hotels. In terms of monetary investment, one hotel placed a large amount on formation of EMS while the other purchased a number of energy saving facilities. In fact, the project funds secured by Nikko represent a small part of the funds available in the community. Further research indicated that there are other sources of funds available for quality environmental projects, as shown in Table IV.

However if one wants to successfully secure the funds, a good and meaningful proposal for application of funds is required. This implies an experienced proposal writer and a team of related experts is a pre-requisite. Again, this type of caliber is not easily available in hotels. Thus, collaboration with educational institutes in writing up the proposal may enhance the likelihood of success.

### Energy performance contracting

Besides applications for public or private funding for hotel's environmental work, energy performance contracting can be considered as another alternative to finance environmental improvement. Performance contracting is a unique arrangement where contractors usually assume responsibility for purchasing and installing the equipment, as well as maintenance throughout the contract. Only when the installed equipment actually reduces expenses does the contractor get paid. This allows the hotel owners to make necessary improvements while investing very little money up front. Meanwhile, it is also a risk-sharing relationship between the host and the contractor that is sometimes called as the Energy Service Company (ESCO) (Woodruff and Turner, 1998). ESCO is a company that provides both the technical expertise to reduce energy costs and the finance for energy efficiency investments. In the UK, performance contracting is called contract energy management (The Chartered Institution of Building Services Engineers, 1991). In fact, the name is relatively new, but some of the companies in the industry have been in business for over 20 years.

	Name of environmental fund	Environmental management systems
US <sup>a</sup>	Richard King Mellon Foundation John D. and Catherine T. MacArthur Foundation The Pew Charitable Trusts The Ford Foundation W.K. Kellogg Foundation The Andrew W. Mellon Foundation	<b>311</b>
Europe <sup>b</sup>	Environment Wales The Environmental Action Fund The Environmental Know How Fund The Environmental Protection Research Program	
Hong Kong <sup>c</sup>	Environmental Conservation Fund and Woo Wheelock Green Fund Innovation and Technology Fund: Innovation and Technology Support Program Innovation and Technology Fund: University-Industry Collaboration Program Innovation and Technology Fund: General Support Fund Sustainable Development Fund Competitive Earmarked Research Grant (CERG) University Internal Fund Departmental Research Fund in University National Natural Science Foundation (NSFC)	

**Table IV.**  
Fund available for quality environmental project

**Source:** <sup>a</sup> Stein (1993); <sup>b</sup> Forrester and Casson (1998); <sup>c</sup> www.itf.gov.hk/Default.asp

According to Hansen and Weisman (1998), performance contracting is now poised on the threshold of even greater opportunities to work with government, utilities, institutions and commercial establishments. In the mid-late 1990s, performance contracting received more attention in the US. For example, the US federal government has used performance contracting to upgrade facilities, even when budgets were being dramatically cut. In essence, they “sold” some of their future energy savings to an ESCO (Woodruff and Turner, 1998). In the case of Canada, trade associations urged government to fund the set up of ESCO, as there was little prospect for setting up private sector firms in the short-term (Association of Energy Engineers, 1998). In Hong Kong, a research report also found that most interviewees considered that performance contracting for energy conservation may be suitable in the future (Chan, 1999). The key elements of applying performance contracting suggested by the interviewees were “management commitment, government support, technical and human factors”.

### Conclusions

Environmental management systems are well-recognized in the hotel industry across the world. Unfortunately, many hoteliers are unable or unwilling to implement the system due to resources constraints. However, two cases studied reveal that resources for the formation of internationally recognized EMS 14001 can be drawn outside the balance sheet (that is equity and liabilities). In the mid-1990s, two professors’ suggestions that sound environmental management can reduce costs also occurred to

Kirk (1995) who subsequently advised the hotel business to start with easy-to-achieve and low cost environmental projects. Moderate and high investment projects can be scheduled later when hoteliers had confidence in and established benefits from earlier environmental actions (Iwanowski and Rushmore, 1994; Kirk, 1995). This approach is particularly suitable to hotels with tight resources or when the hotel sector experiences a business downturn. Nevertheless, hoteliers may learn from successful cases, particularly Nikko, and collaborate with various “green” partners – universities, government, trade associations and green bodies – to work on more complex environmental matters. Specifically, hotels can team up with these green members to apply for research funding for the investigation and implementation of EMS. This practice, in turn, accelerates the speed of environmental actions.

Apart from EMS with ISO certification, Green Globe 21 also offers a certification to travel-related organizations that wished to demonstrate their commitment to environmental improvement. The Green Globe program provides travel and tourism companies with a framework for achieving year on year improvement in environmental performance (Rodgers, 2002). The framework contains five sections, including environmental policy, regulatory framework, environmental performance; EMS as well as requirements for stakeholder consultation and communication. Other-related certified programs may include Australia’s International Ecotourism Standard, Americas’ Sustainable Tourism Certification Network and Europe’s Voluntary Initiatives for Sustainability in Tourism (Hammond, 2004). Similarly, obtaining these certifications also requires a significant amount of resources and effort. The financial tools – mainly collaboration between hotel and external parties including universities, governments, trade associations and green bodies – ascertained in these case studies can thus be applied when any organization plans to pursue these programs.

Other than green certification granted by ISO and Green Globe, the voluntary environment assessment scheme for hotels (Hong Kong Hotels Association, 2000) also receives a considerable amount of technical resources and research expertise. The scheme sets a scoring scheme in two areas. One is to consider actions by the hotels in endeavoring to reduce environmental impacts through more effective management and maintenance practice. The other is to assess the building facilities performance by referring to indoor environmental performance criteria, local codes of good practice and benchmarked energy and water consumption. As such, hotel’s collaboration with university staff in conducting research and applying for research funds as manifested in the studied cases may provide valuable and enormous assistance to attain a good scoring result.

The lesson learnt from these cases reveal that trade association’s participation in environmental work cannot be neglected. The association in these cases not merely promoted the green activities by presenting environmental awards and organizing seminars but for instance also coordinated with enthusiastic hotels by arranging transport to ship all discarded bottles for recycling. Most importantly, the association also assisted in writing endorsement letters to apply for funds for creating a template for hotels to develop EMS according to ISO requirements. Thus, the association indeed provides a catalyst function to advance the function of EMS in the industry. Embedded in these supportive activities are enormous time and resources.

On the other hand, the government also played an important role in the industry's green environment, not just by creating environmental funds to assist the business. In fact, the government officials have always shared their experience on environmental work with the practitioners. In order to keep updating their environmental technology knowledge, the officials regularly liaise with manufacturers, professors and their colleagues in the environmental protection department as well as the engineering department. Without their endeavor in environmental improvement, the pace of environmental movement would definitely slow down.

In the late 1990s, a survey conducted by the United Nations and the International Hotel Association identified a lack of training resource as the major concern when introducing environmental matters in hotel management curricula. The French Ministry of Spatial Planning and Environment together with some hotels have sponsored the production of teaching tools for environmental issues in hospitality curricula (United Nations Environmental Program, 2001). The Hong Kong and French government's funding in these two cases further indicate the importance of government support in pursuit of sustainable tourism by the industry. In fact, besides funding, the government officials have always shared their experience on environmental work with practitioners and listen to environmental problems encountered by practitioners. This two-way communication also implies a significant amount of time devoted by both parties. Thus, government's active participation may hasten the pace of environmental change.

Other than the above-mentioned stakeholders in the hotel industry's pursuit of sustainable tourism development, green groups are also another major contributor. They often complement the university's environmental research, and green groups have also conducted some environmental research which may, to a certain extent, be applicable to the hotel environment. For instance, Friends of the Earth has investigated disappearing timber in tropical rain forests in relation to buildings. In addition, these groups have always received resources and donations for organizing public awareness campaigns. Hoteliers may take such opportunities to encourage their staff to participate and to receive any environmental knowledge from these occasions. Thus, green groups' activities will be especially beneficial to the early stages of the environmental movement. While many green groups have been known for engaging in protest, many of them have adopted a posture of constructive co-operation and communication with companies. As Pryce said, this "true dialogue can often lead to creative and effective solutions."

In future, energy performance contracting may be another promising method for hoteliers to conserve their water and energy consumption. It is also commonly envisaged that performance contracting would be a trendy and popular way for hotel operators to trial the use of energy saving facilities.

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Environmental management system (subcommittee 1)	ISO 14001	Environmental management systems – Specifications with guidance for use
	ISO 14004	Environmental management systems – General guidelines on principles, systems and supporting techniques
Environmental auditing (subcommittee 2)	ISO 14010	Guidelines for environmental auditing – General principles
	ISO 14011	Guidelines for environmental auditing – Audit procedures – auditing of environmental management systems
	ISO 14012	Guidelines for environmental auditing – Qualification criteria for environmental auditors
	ISO 19011	Guidelines for quality and/or environmental management systems auditing (this standard replaces ISO 14010, 14011 and 14012 since 2002)
	ISO 14015	Environmental management – Environmental assessment of sites and organizations (EASO)
Environmental labeling (subcommittee 3)	ISO 14020	Environmental labels and declarations – General principles
	ISO 14021	Environmental labels and declarations – Self-declared environmental claims (type II environmental labeling)
	ISO 14024	Environmental labels and declarations – Type I environmental labeling – Guiding principles and procedures
	ISO/TR 14025	Environmental labels and declarations – Type III environmental declarations
Environmental performance evaluation (subcommittee 4)	ISO 14031	Evaluation of environmental performance
	ISO/TR 14032	Examples of environmental performance evaluation
Life cycle assessment (subcommittee 5)	ISO 14040	life cycle assessment – Principles and framework
	ISO 14041	life cycle assessment – Goal and scope definition and inventory analysis
	ISO 14042	life cycle assessment – Life cycle impact assessment
	ISO 14043	life cycle assessment – Life cycle interpretation
	ISO/TS 14048	life cycle assessment – Data documentation format
	ISO/TR 14049	Life cycle assessment – Examples of application of ISO 14041 to goal and scope definition and inventory analysis

**Table AI.**  
The ISO 14000 series of standards

**Source:** International Organization for Standardization (2002)

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