

Environmental management and sustainable development in the hotel industry: a case study from China

Huayu Shen* and Lingjie Zheng

Department of International Business,
Xiamen University, Tan Kah Kee College,
Zhangzhou City 363105, Republic of China
E-mail: shy112965@yahoo.com.cn E-mail: shy1130@hotmail.com
E-mail: zlingjie@163.com
*Corresponding author

Abstract: More and more consumers are becoming aware of environmental problems. As a result governments have initiated programs for sustainable development to improve the well being of society. The hotel sector is an important industry for implementing such programs. The aim of this case study was to review the development of 'green hotels' in the People's Republic of China. Basic principles for the operation of such hotels are discussed including obstacles and problems. Lastly, some suggestions and measures are provided which may be useful for hotel managers and governments.

Keywords: green hotel; environment; sustainable development; healthy society; China.

Reference to this paper should be made as follows: Shen, H. and Zheng, L. (2010) 'Environmental management and sustainable development in the hotel industry: a case study from China', *Int. J. Environment and Sustainable Development*, Vol. 9, Nos. 1/2/3, pp.194–206.

Biographical notes: Huayu Shen received his MSD in Tourism Management from Zhejiang University in 2006. He is now an Assistant Professor at the Department of International Business, Xiamen University, Tan Kah Kee College. His current research interests include enterprise management in tourism, electronic commerce and information management in tourism. His papers have appeared in refereed journals such as *International Journal of Service Technology and Management (IJSTM)*, *Tourism Tribune*, *Contemporary Manager*, *Journal of Xiamen University*, *Journal of Guilin Institute of Tourism* and in some conference proceedings.

Lingjie Zheng is a student majoring in Tourism Management at Xiamen University, Tan Kah Kee College. Her current research interests are in tourism management.

1 Introduction

The hotel industry consumes substantial quantities of energy, water and non-durable products. This has a significant environmental impact (Rada, 1996; Moffitt and

Engeldrum, 1997; Paulina, 2006). Pigram (1995) noted that tourism could certainly contribute to environmental degradation and be self-destructive, so more attention should be paid to sustainable development of such industries. In fact, all sectors of the global commerce have been bringing increased pressure on the environment (Buckley, 2002). A recent improvement in the sustainable development of this industry is the green hotel (Hemmelskamp and Brockmann, 1997). Such a hotel protects the ecology and utilises resources in a rational manner, acting on safe, healthy and environment-protecting principles. It adheres to green management and upholds green consumption, with its core values residing in reinforced protection of the environment and rationalised utilisation of resources by providing customers diets as well as rooms up to the standards of safety, healthiness and environment-friendliness.

The World Commission on Environment and Development, in a report, advocated the concept of sustainable development to meet modern needs without compromising the ability for the needs of future generations. It also initiated the idea of development with minor environmental pollution. In the 1980s, the concept of environment-friendly hotels appeared in developed countries in Europe and USA (Liu, 2004). Some hotels gradually became concerned about the environment and tried their best at changing strategic concepts, improving awareness of the environment and enforcing environment-friendly management (Bohdanowicz, 2005). 'Green-label' products have been provided, for example, in whichever hotels have nurtured a new green image. Such an approach to comprehensive economic, social and environmental benefits has ultimately accelerated sustainable and competitive development of the industry. It was reported that Inter-Continental Groups, one of the initiators for environmental management, reduced energy costs by 27% through green measures over a seven year period. Its energy conservation was as much as four million dollars in 1995 (Ye, 2003). Nowadays, 'green hotels' in developed countries have increased by 8%–20% annually, hitting the substantive stage of development of large-scale promotion (Sina, 2002).

In 1993, environmental management in hotels started in the form of initiatives by various associations and activities. The International Hotels Environment Initiative (IHEI) was launched, when 11 hotel groups including Accor, Forte PLC, Hilton, Holiday Inn, Inter-Continental, Sheraton, Conrad International, Marriott, Meridien, Ramada International Hotels and Resorts, Omni International, united to conduct environment-friendly management. A year later, 16 hotel groups in the Asia-Pacific rim launched an Asia-Pacific Hotels Environment Initiative (Chan and Lam, 2001). In the same year, the Hotel and Catering Institute Management Association participated in Green Globe, an environmental management awareness program initiated by the WTTC. Moreover, in 1997, the Caribbean Alliance for Sustainable Tourism (CAST) was created to undertake collaborative environmental activities and initiatives within the hotel and tourism sector (Hotel Online, 2002). In addition, individual hotels like Ibis Homebush, Grecootel, Ramada Renaissance Hotel, among others, are aggressive at pursuing environmental initiatives. In Hong Kong, a survey conducted in 1992 found that about 30% of hotels launched environmental programs with varying degrees of success (Barlett, 1992).

Environmental management issues that have been of concern to the hotel industry have been recycling and management of wastes, energy saving and water conservation (Zhao and Merna, 1992; Forte, 1994; Kotler et al., 1999; Middleton and Hawkins, 1998).

In recognition of environmental problems, governments along with the enterprises in the tourism industry as well as tourists have become increasingly aware of the need for more effective measures to protect the environment (Stabler and Goodall, 1997). Since the 1990s, tourists have been becoming increasingly concerned about the activities that might destroy the environment during travel. Many studies have revealed that the environment is one of the major factors that affect tourists' decision (Terry and Cathy, 2006; Angel and Jaume, 2007; Asad, 2005; Holden, 2003). Also, governments and some non-governmental organisations such as the Department of Environment of the USA and Australia, have taken many actions to draw the attention of local residents and the tourism industry to sustainable development. Those tourism stakeholders have come to adopt some effective measures to meet the requirements of governments. However, as the hotel industry occupies a central place in the tourism industry worldwide, accounting for 31% of tourists' expenditures in 1998 (WTTC, 2000), a more tangible index for the industry's development is needed. Its impact on the environment cannot be overestimated (Ishmael, 2006; Kozak, 2002).

Hotels are responding actively to the calls and concerns about the environment, culminating in initiatives such as the International Tourism Partnership (ITP), World Travel Tourism Council (WTTC), Pacific Asia Travel Association's (PATA) and the Tourism Industry Association of Canada (Hawkes and Williams, 1993). The effect of these initiatives has yet to be evaluated but a number of companies such as Inter-Continental Hotels, Canadian Pacific Hotels and British Airways have developed and published their own environmental policies (Troyer, 1992; International Hotels Environment Initiative, 1993). Yet, despite those initiatives, the industry as a whole appears to have made relatively little effort to date and to have taken little real active part in identifying the environmental issues, so vital to its own success. It would seem that the main input has been from a few key international players, while little is known about the rest of the industry.

For the hotel sector, the international indexes for environment-friendly hotels comprise architectural construction, facilities operation, resources consumption, healthy products and environment protection efforts such as wastes management and recycling, clean air, energy and water conservation, permits, environmental health, purchasing policies and environmental education (Becken and Simmonds, 2002; Deng and Burnett, 2000). In the People's Republic of China, for example, more and more hotels are embracing the concept of environmental management within the context of sustainable hotel development. Nowadays, moreover, in order to make great improvements before Beijing 2008 Olympic Games, more and more hotels have been taking actions to ensure their practices accord with the indexes mentioned above.

The aim of this case study was to review the development of 'green hotels' in the People's Republic of China. Basic principles for the operation of such hotels are discussed including obstacles and problems. Lastly, some suggestions and measures are provided which may be useful for hotel managers and governments.

2 Development of 'green hotels' in the People's Republic of China

In the mid-1990s, the concept of 'green hotel' began spreading in China. In 1997, the practices and activities of this type of hotel were initiated in foreign-owned, joint-ventures and in some international branches in big cities like Beijing, Shanghai,

Guangzhou et al. The year 1999 was named ‘year of ecotourism’ and its themes were ‘Nearing Nature, Knowing Nature and Protecting the Environment’. In the meantime, Zhejiang Province, as the birthplace of this kind of establishment in China, initiated practices and activities towards ‘green hotel’ and ‘green consumption’ via its Tourism Bureau, Planning and Economic Commission and Environment Protection Bureau in March 1999, when many hotels in Zhejiang Province actively participated in the practices and activities. By the end of 2000, the country’s Hotel Association launched a nationwide campaign; the first batch of ‘green hotels’ appeared. Furthermore, the standard for this kind of hotel was promulgated in Zhejiang in the same year.

After this, the regional standard gradually appeared in other provinces and cities in the country. In 2002, The People’s Republic of China Hotel Association issued the standards of ‘green hotel’ and ‘green hotel rating’ (SB/T10356-2002). The uniform national standards were a breakthrough for the traditional concept of this kind of lodging, which extended the simple concept of environment protection to security, health and environment protection. Since the release of the standards, the country’s hotel association has regulated a series of implementation details which gives a practical guidance for hotels, and continued to supplement and revise in accordance with practices (Table 1).

Table 1 Seven dimensions for ‘green hotel’ rating

<i>Dimensions</i>	<i>Details</i>
Water saving	Installing advanced water-saving equipment, enforcing several water-saving methods, reusing water material Recording the total amount of water consumption at least once a month, standardising the water amount of flush toilet, the water amount of shower nozzle and the amount of water using by dishwasher machine Standardising the level of water using by individual department and establishing the responsibility system, establishing water-metering system, recording and analysing the situation of water-using Prohibiting leaking and wasting water
Energy management	Recording and analysing energy consumption at least once a month, stipulating the energy (electricity, coal, oil and so on) consumption for each department Maintaining and cleaning equipments of ventilation, refrigeration and heating regularly, checking and recording the sealing conditions of cold cabinets and windows Optimising the energy-metering system Adopting advanced energy-saving technologies such as solar heating system and geothermal heating system and so on
Environment protection	Standardising the level of waste water discharge, smoke and dust emission for boiler, waste gases emission and noise Utilising non-phosphor washing products Using environmental-friendly equipments for refrigerators, air-conditioners and cold water chillers Keeping high-quality air without polluting decoration Keeping out-door ratio of green space up to 95%

Source: Translation from a part of SB/T 10356-2002 green hotel rating criteria.

Table 1 Seven dimensions for 'green hotel' rating (continued)

<i>Dimensions</i>	<i>Details</i>
Waste management	Reducing, classifying and recycling using waste Establishing equipments for classifying and recycling waste Publicising information of waste classification to customers Establishing special recycling sites for dangerous waste such as waste discharges
Green guest room	Establishing no smoking floor Reducing the number of change for disposal guest items, towel, bed sheet and pillow case according to the needs of customers Using the degradable material for packaging of items in guest room Setting chlorophytes which benefit to guests Supplying pure drinking water Being sufficient in sunlight, no foreign smell and no noise
Green food and beverage	Setting no smoking area and no smoking signs Having perfect ventilation system and no cooking smell Guaranteeing the raw materials safely Using green foods, organic foods and unpolluted vegetables Not selling the foods from wild animals protected by law Drafting green service regulation, advocating green consumption, providing excess food packaging service Not using disposal foaming plastic cutlery, disposal wooden chopsticks and disposal towels Having separated washrooms for men and women
Green management	Establishing effective system of environmental management Establishing effective systems of public safety and food safety Establishing monitoring system of choosing green foods and environmental protection products Adopting green design actively Green actions appreciated by society, keeping the overall satisfaction rate of customers up to 80%

Source: Translation from a part of SB/T 10356-2002 green hotel rating criteria.

Many hotels have been concerned with the 'green hotel' concept in practice and management; for instance, in 2005, the year of the 34th World Environment Day, BTG-Jianguo Group, a famous hotel management company, started the campaign of 'green action', when 13 hotels signed a 'Declaration of Green Action', which was launched on the basic principles of energy conservation, environment protection and a harmonious society, with the first step to reduce the supply of one-time amenities and power consumption. Later on, they upgraded the water and power systems with high-tech and advanced equipment. Finally, they tried their best to enhance tourists' awareness of

environment protection and establish competitive 'green-brands'. That same year six national commissions, including Commerce Commission, National Development and Reform Commission, SASAC, State Environmental Protection Administration, National Tourism Administration and State Commission for Administration of Standardisation jointly issued a 'Notice on Nationwide Practices and Acts for Green Hotels'.

The following year based on the experience of such hotels, China's National Tourism Administration released a new standard for 'green hotel' (LB/T007-2006) which was modelled on the local standards of Zhejiang Province. The newly-adopted standards which were implemented by tourism hotels as a recommended industrial norm will serve as a supporting document of 'hotels rating standards'. A committee would supervise, inspect and guide the hotels in the aspect so as to promote hotels' sustainable and healthy development.

Nowadays, more and more people are becoming concerned with green consumption, preferring green products, consumables, engineering and hotels. This has great potential. Such type of accommodation may become the inevitable trend and choice for hotels in the future.

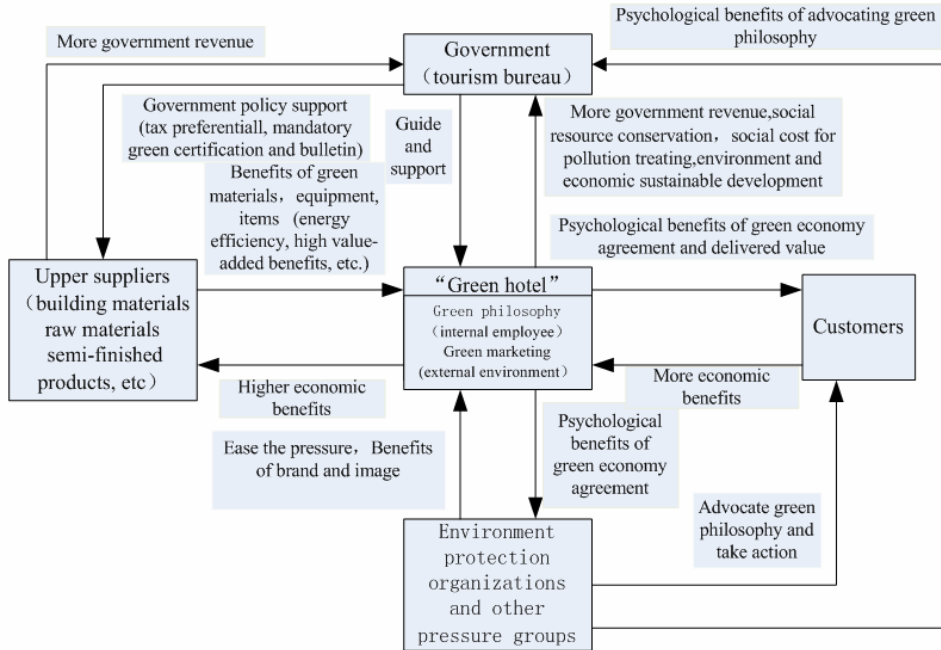
It was reported by a reporting group for 'Green Hotels Tour Around China' that Tianjin, Dalian, Qingdao, Hefei, Nanjing, Chongqing and other cities were vigorous in the activities and practices of 'green hotels'. The number of 'green hotels' had reached 205 in Zhejiang province by the end of 2006, which is the largest in the country. Shanghai, Beijing, Jiangsu has also taken the forefront; for instance, 143 hotels were awarded 'green hotels' in Beijing alone, 81 hotels of which are golden-ginkgo biloba 'green hotels' and 62 others are silver-ginkgo biloba ones.

3 The principles of 'green hotels'

A 'green hotel' can help conserve energy, decrease pollution and reduce operating costs,. This is beneficial to the whole society. Attention should be paid to the following principles: Firstly, a hotel should adhere to the one core philosophy of a 'green-label', and the facilities, products, services, rooms and everything else in it should make tourists aware of this philosophy, so that they may take actions such as saving water and energy.

Secondly, we must understand and utilise two different theories, i.e., those of customer delivered value (CDV) and of interest equilibrium. Kotler (1994) first put forward the theory of CDV in his book 'marketing'. CDV means the difference between total customer value (TCV) and total customer cost (TCC), TCV being the bundle of benefits expected from a given product or service and TCC the bundle of costs expected to incur in evaluating, obtaining and using the product or service. One way to improve CDV in a 'green hotel' is to increase the total value of a customer which resides in the function of products, services, personnel and image value. The other is to reduce the total costs of a customer which consists in the function of money, time, energy and other costs. Interest equilibrium theory emphasises the balance of interests and 'symbiotic principle'. The practices in a 'green hotel' only can go smoothly and stably when the interests of stakeholders are satisfied. This includes the hotel, customers, the government, employees, upper-stream suppliers, environment protection organisations and other pressure groups (Figure 1). Attention to interests of these six stakeholders.

Figure 1 The theory of interest equilibrium in green-hotel (see online version for colours)



Thirdly, as the room is the main product for a customer, so a ‘green hotel’ should provide green rooms up to the requirements of environment protection and healthiness, e.g. healthy building materials and energy-saving items. Furthermore, a ‘green’ dining environment should be provided as well as green foods. The premises should be pollution-free, safe, fresh and of a high-quality. In addition, the requirement of ‘green’ services calls for employees to adhere to the concept in the whole service process, i.e., pre-sale, on-sale and post-sale. Particularly, a hotel should provide guidance for customers to save energy and other resources, and to enhance their awareness of the environment.

Lastly, the concept of a ‘green hotel’ consists of conservation, environment protection, safety, healthiness and harmony. Therefore, if a hotel wants to be ‘green’, it should embrace the concept and take actions in water and power saving, healthy food, items recycling and arousing environmental awareness in employees and customers.

4 Case studies

Hebei Century Hotel introduced the ‘green hotel’ in several major ways. It has enacted detailed management mechanisms, assessment and approval procedures in terms of consumption, energy saving, environment protection, green foods, green services and green propaganda in accordance with the standards for a green hotel. A three-tiered network of green management has been built in the hotel consisting of the hotel, the sections and the teams/squads to ensure the implementation of the green measures designed for the posts. In the guest rooms, the hotel used environment-friendly materials.

An advanced central air-conditioning system was installed ensuring that the temperature within the hotel remained within the range amicable to one's health. A sophisticated air-cleaning apparatus was installed, disposable consumption goods such as napkins, tooth picks and matches were collected in a timely manner, and dustbins in which harmful wastes are classified such as used batteries as well as garbage cans were placed in public places. Salutory plants were put in public places as well as in the guest rooms.

Reducing devices for consumption in the water supplying system were installed, an advanced air flow varying control technique was used. In the rooms, laundry bags were placed for repeated use. Rewards were granted to those guests requesting fewer laundry changes for bedding and sheets. Smoke-free floors were set aside, purified drinking water was offered within the rooms and incentives such as free service of fruits were provided. Smoke-free sections were provided on all of the floors. , On the second floor a showcase for green foods was on display. Guests were encouraged to bring along their leftover dishes through a bagging service.

Finally, green information was publicised through various forms, e.g., pasting slogans in public places, setting up tags reminding customers to order proper amounts of foods, giving the service guide tips about green guest rooms in guidebook, and placing soliciting cards suggesting reducing the consumption of toothbrushes, combs, slippers and bathing caps. The customers' awareness of green consumption was also proactively raised by the waiters who reminded them to use green and healthy goods and to economise water, electricity and other consumables. Dish ordering attendants reminded clients ordering proper kinds and quantities of food, and special care takers regularly called on guests, and exchanged with them ideas about green ideologies. The hotel also conducted publicity about green ideas in such public medias as news reports and advertisements.

Another case study example is the Nanyuan Hotel in Ningbo, Zhejiang province. The hotel has taken myriad measures by enhancing all staff's awareness of environment protection through enactment of standards for green foods in the hotel training and publicity campaigns, working round the three standards of 'recycling', 'reusing' and 'reducing'. Three measures were adopted: managing energy consumption effectively and reducing environment pollution, (i.e., the engineering section makes records and keeps books daily about the working of facilities, equipment, instruments and meters, thereby maintaining a fine mechanism of energy consumption statistics); new air-conditioning systems were installed in all the public places as well as in the guest rooms. Renovation was made in all the lighting facilities in the lobby and other public places for energy consumption control. All lamps were controlled intelligently. Sophisticated equipment for treatment of sewage and waste gases was installed. The consumption of papers was cut down for daily office work. TeamFusion, an office software was installed to promote paper-free office work. As a result, the amount of energy consumed decreased each year (Table 2).

To create atmosphere of 'green rooms', two private gardens were built, one on the roof and one on the rear square. A tap water system was constructed in each room so that the water was drinkable at the turn of the tap. Smoke-free areas were set aside in the lobby as well as in the dinning spots. Recyclable, degradable and pollution-free environment-friendly wrappers were used. In each room a card was placed reminding customers about textiles and their repeated use. A central laundry was built within the compound so that pollution from laundry was greatly reduced (Table 3).

Table 2 Energy consumption of Nanyuan Hotel in Ningbo from 2002 to 2004

<i>Year</i>	<i>2002</i>		<i>2003</i>		<i>2004</i>	
Total operating revenue (10,000 Yuan)	13,787		16,728		23,625	
Electricity consumption (10,000 degrees)	679.3	5.0%	813.6	4.9%	906	3.8%
Water consumption (10,000 tons)	20.84	0.15%	23.01	0.14%	21.8	0.09%
Diesel oil (ton)	781.8	5.7%	1,004.68	6%	1,202.69	5.1%
Gas (cylinders)	1,317	9.5%	1,360	8.1%	1765	7.5%

Source: Hotel Modernization (2007, pp.60–62)

Table 3 Consumption of housekeeping items of Nanyuan Hotel in Ningbo from 2002 to 2004

<i>Year</i>	<i>2002</i>		<i>2003</i>		<i>2004</i>	
Operating revenue of housekeeping (10,000 Yuan)	5,516.44		6,551.53		9,318.03	
Washing fee (10,000 Yuan)	583.87	10.6%	588.82	9.0%	635.90	6.8%
Housekeeping items (10,000 Yuan)	229.57	4.2%	339.70	5.2%	440.69	4.7%
Cleaning items (10,000 Yuan)	22.90	0.42%	26.52	0.4%	39.22	0.4%

Source: Hotel Modernization (2007, pp.60–62)

Finally, other hotels such as Jinling Hotel, Ningbo Hotel and Xiamen International Seaside Hotel, have also offered some innovative methods. Environmental groups have launched the solicitation of ‘Golden Initiatives’ for ‘Embracing the Green Life’, use of nuisance-free, green and organic produces, inviting guests to participate in activities of energy saving, reminding guests to remove the power calling cards when leaving their rooms. The practice of ‘green hotels’ has not only brought economic returns for the hotels themselves, but has also provided social and environmental benefits.

With the promulgation of national and local standards, some hotels have made great achieves and put forward a series of effective measures. For example, Xizi Hotel encouraged customers to use ‘energy card’ for energy conservation, Jinling Hotel established an environment protection group, who organised a program of ‘embracing green life’ for collecting golden ideas from everyone in the hotel; 300 golden ideas were collected. Ningbo Hotel utilised new energy-saving lights and conserved energy by 60%. But there are problems and obstacles of ‘green hotel’ practices in the case study country.

5 Obstacles to the practices of ‘green hotels’ in the case study area

5.1 The lack of ‘green’ concept and awareness

The tourism bureau needs to change the traditional concept – tourism industry is a smokeless industry – to ‘green’ concept. Although the government promulgated the standard for ‘green hotel’ in 2006, hotel managers from short-term interest are unwilling to invest too much money in the implementation. Hotel staff do not understand the ‘green’ concept thoroughly. At present, consumers are aware of the importance of environment protection, but the old concept of living in a hotel is to enjoy extravagance. That has not changed. Therefore, government, hotel managers, staff and consumers all do not understand the ‘green’ concept comprehensively. This has seriously affected its implementation.

5.2 Measures and methods of ‘green’ management need to be improved

In 2007, several ‘green hotels’ in Beijing were spot checked. The results showed that a majority of the hotels had problems with implementation methods or measures. For energy saving such as lighting, effective measures were not commonly adopted. For roads, landscape and decoration, semiconductor lamps were not employed. For water saving, laundry wastewater was not recycled and reused, and waste-water recycle system were not been built. Wastes recycle sorting and disposal items reducing were not implemented following the ‘4R’ principle (reducing, reusing, recycling and replacing).

5.3 Decreased customer delivered value that leads to misunderstanding

‘Green’ concept should pay attention to conservation, environment protection, security, harmony and health. Customers have an intuition that saving will reduce hotel costs, whereas they should confront inconvenience, which decreases customer delivered value, such as taking disposal items by themselves. In addition, new energy-saving or environment protection materials are expensive. As hotel adopts new technology and these materials, customers purchasing price increased indirectly, which also reduces customer delivered value. Thus, customers misunderstand the practices of ‘green’ concept, and do not support the actions of the hotel.

5.4 Lack of systematic ‘green’ concept training and related appraisal system for staff

In the era of ‘green wave’ and sustainable development, more and more hotels actively guide customers to ‘green’ consumption which promotes customers’ green awareness. However, hotel staff, who don’t treat the hotel as their own, will not pay attention to details and energy conservation.

There are many different kinds of hotel training, such as pre-training, fire fighting training, service skills training and foreign language training, but few hotels have taken ‘green’ management training. For appraisal systems, few hotel managers have a ‘green’ management assessment system. Managers and staff have a weak awareness of energy conservation, and no one is responsible for the energy waste.

6 Recommendations and suggestions

6.1 All stakeholders need to understand the 'green' concept

In practice, stakeholders should communicate, interact and cooperate to make implementation more effective and comprehensive. Hotel managers and staff should adhere to the '4R' principle. 'Reducing' requires hotels to utilise fewer raw materials and less energy to achieve fixed economic goals, at the same time, to achieve environmental benefits by reducing costs and waste. 'Reusing' requires the hotel to use items again and again or extended uptime as long as possible without lowering standards of facilities and services. For example, toiletries can be breathed into refilling container, Accor Group also encourages customers to use towels again and again. 'Recycling' requires hotel to recycle some items and turn them into available resources. Staff and customers are encouraged to be involved in recycling activities, such as paper, plastic and glass be recycled separately. 'Replacing' encourages hotels to utilise alternative non-polluting materials and items (including natural materials), such as paper cutlery instead of plastic cutlery.

6.2 Adopting advanced technological equipment

In order to make the practices of 'green hotel' more efficient, semiconductor lamps, Freon-free refrigerators, frequency-converter air-conditioning, water reuse system and frequency conversion control system for constant pressure water supply should be used.. In addition, hotels should adopt effective 'green' management measures; for instance, minimising the use of disposable items, reducing the amount of phosphate-free detergent for washing dish and fabric, providing 'green' food, recommending reasonable and health diet, installing water and electricity meter in important sites, and regularly read and compared.

6.3 Hotels should ensure that customers accept and benefit from 'green' practices

Hotels, travel agencies, scenic spots and product suppliers unit to form economic community, which develops value chain marketing, such as hotels offer customers favourable price for eco-tourism, and establish cooperation with rural 'green' vegetables and meat bases. Also hotel should implement total quality marketing, food and service provided must be understood by customers, staff should spread 'green' concept from subtle practices and guide consumers 'green' consumption. Hotel should continue to improve quality of products and services, from which customers benefit, for instance, initiating accumulated 'green' credits award scheme for customers, hotel can also return part of cost to customers who did not use disposable items. Hotels can provide optional items which make services more diversified and personalised.

6.4 Training 'green' staff

Staff plays an important role. Apart from setting up an individual department for 'green' management, hotels should enforce 'green' education for all staff. The staff is encouraged to participate in 'green' activities. For example, staff can be encouraged to provide

suggestions on 'green' management. Contributors can be rewarded, recognised and promoted. In addition, outstanding deeds can be published in internal newspapers or on bulletin boards. This will encourage more staff to participate in 'green' management.

References

- Angel, B.B. and Jaume, R.N. (2007) 'Modeling environmental attitudes toward tourism', *Tourism Management*, Vol. 28, pp.688–695.
- Asad, M. (2005) 'Tourist attitudes and destination marketing – the case of Australia's northern territory and Malaysia', *Tourism Management*, Vol. 26, pp.723–732.
- Barlett, F. (1992) 'How green are Hong Kong hotels?', *One Earth*, Vol. 16, pp.22–23.
- Becken, S. and Simmonds, D.G. (2002) 'Understanding energy consumption patterns of tourist attractions and activities in New Zealand', *Tourism Management*, Vol. 23, pp.343–354.
- Bohdanowicz, P. (2005) 'European hoteliers' environmental attitudes: greening the business', *Cornell Hotel and Restaurant Quarterly*, Vol. 46, pp.188–204.
- Buckley, R.C. (2002) 'Tourism ecocertification in the international year of eco-tourism', *Journal of Eco-tourism*, Vol. 1, pp.197–203.
- Chan, W. and Lam, J. (2001) 'Environmental accounting of municipal solid waste originating from rooms and restaurants in the Hong Kong hotel industry', in Kaye, K.S. and Chon (Eds.): *Journal of Hospitality and Tourism Research*, Vol. 25, pp.371–385.
- Deng, S. and Burnett, J. (2000) 'A study of energy performance of hotel buildings in Hong Kong', *Energy and Buildings*, Vol. 31, pp.7–12.
- Forte, J. (1994) 'Environmental-friendly management in hotels', in Taylor, B. et al. (Eds.): *Environmental Management Handbook*, pp.97–113, Pitman Publishing, London.
- Hawkes, S. and Williams, P. (1993) 'The greening of tourism – from principles to practice', *A Casebook of Best Environmental Practice in Tourism*, Simon Fraser University, Canada.
- Hemmelskamp, J. and Brockmann, K. (1997) 'Environmental labels: the German 'blue angel'', *Futures*, Vol. 29, pp.67–76.
- Holden, A. (2003) 'Investigating trekkers' attitudes to the environment of Annapurna, Nepal', *Tourism Management*, Vol. 24, pp.341–344.
- Hotel Modernization (2007) 'The new face of green hotel of Nanyuan Hotel in Ningbo', *Hotel Modernization*, Vol. 10, pp.60–62.
- Hotel Online Special Report (2002) 'Consumer attitudes towards the role of hotels in environmental sustainability/international hotels environment initiative research', available at <http://www.hotel-online.com/News/PR2002-3rd/Jul02-IHEI.html>.
- International Hotels Environmental Initiative (1993) *Environmental Management for Hotels: The Industry Guide to Best Practice*, Butterworth-Heinemann Ltd., Oxford.
- Ishmael, M. (2006) 'Environmental management practices among hotels in the greater Accra Region', *Hospitality Management*, Vol. 25, pp.414–431.
- Kotler, P. (1994) *Marketing Management: Analysis, Planning, Implementation, and Control*, 8th ed., Prentice-Hall International, Inc.
- Kotler, P., Bowen, J. and Makens, J. (1999) *Marketing for Hospitality and Tourism*, 2nd ed., pp.25–28, Prentice Hall Incorporated, UK Ltd.
- Kozak, M. (2002) 'Destination benchmarking', *Annals of Tourism Research*, Vol. 29, pp.497–519.
- Liu, C. (2004) 'The development of 'green hotel'', *Journal of Ji Lin Commercial College*, Vol. 74, pp.52–54.
- Middleton, V.T.C. and Hawkins, R. (1998) *Sustainable Tourism: A Marketing Perspective*, pp.134–152, Butterworth Heinemann, UK.

- Moffitt, K. and Engeldrum, D. (1997) 'Environmentally sensitive hotels', available at www.planeta.com/planeta/97/0597hotel.html.
- Paulina, B. (2006) 'Environmental awareness and initiatives in the Swedish and Polish hotel industries – survey results', *Hospitality Management*, Vol. 25, pp.662–682.
- Pigram, J. (1995) 'Alternative tourism: tourism and sustainable resource management', in Smith, V.L. and William, R. (Eds.): *Tourism Alternatives*, pp.19–20, Wiley, UK.
- Rada, J. (1996) 'Designing and building eco-efficient hotels', *Green Hotelie*, Vol. 4, pp.10–11.
- Sina (2002) 'Creating 'green hotels' in Beijing is the need for 2008 Olympic Games', available at <http://finance.sina.com.cn>.
- Stabler, M.J. and Goodall, B. (1997) 'Environmental awareness, action and performance in the Guernsey hospitality sector', *Tourism Management*, Vol. 18, No. 1, pp.19–33.
- Terry, L. and Cathy, H.C. (2006) 'Predicting behavioral intention of choosing a travel destination', *Tourism Management*, Vol. 27, pp.589–599.
- Troyer, W. (1992) *The Green Partnership Guide*, Canadian Pacific Hotels and Resorts, Toronto.
- World Travel and Tourism Environmental Research Centre (WTTC) (2000) available at www.worldtraveltourism.com.
- Ye, L. (2003) 'Year 2003: What will 'green hotels' do in the People's Republic of China?', available at <http://ibdaily.mofcom.gov.cn/show.asp?id=30693>.
- Zhao, J.L. and Merna, K.M. (1992) 'Impact analysis and the international environment', in Teare, R. and Olsen, M. (Eds.): *International Hospitality Management; Corporate Strategy in Practice*, Wiley, Pitman Publishing, New York.