



The Climate For Change



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Day 1

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Session 1. The challenges - an industry overview

Presented by Stephanie Draper

Based on Forum for the Future's experience of working in tourism there are four main challenges facing the travel and tourism industry, namely:

1. **Climate change:** the need to reduce Green House Gas (GHG) emissions in the next 10-15 years (individually by about 66% to avoid the runaway effects of dangerous climate change), combined with the end of cheap oil, will effect airline company and customer practices. A 3-year 'Goldilocks' cycle of holidaying is one possible solution: a pattern of 'long haul' and 'long stay' holidays every three years, with local holidays and travel overland in the intervening years. The main focus for climate change and efficiencies needs to be around the Carbon Management hierarchy - ARSO. This stands for Avoid (by designing out the need to use energy), Reduce (by being as efficient as possible), Substitute (through the use of renewables) and then Offset the carbon that you can't avoid emitting (using reputable schemes that reduce other people's GHG emissions).
2. **Industry growth and scarcity of natural resources:** By 2020 the UNWTO is predicting 1.6 billion tourists (compared to 800M today) this is a massive increase that will put pressure on people and the environment (it will mean a 152% rise in CO2 emissions for example). At the same time we are seeing the depletion of natural resources (part of the tourism product that it relies on) - extinction of species, pressure on water resources (water consumption is doubling every 20 years) etc. Special places will be more restricted (we are already seeing that in places like the Galapagos) and we will also need to do more to put a financial value on biodiversity and natural capital, to drive conservation efforts and protection.
3. **Capturing the opportunity:** the first two pressures mean we need a new model of sustainable tourism. What's more, tourism provides a perfect opportunity to showcase sustainable development programs and 'square the social circle'; This can be illustrated by the 5 Capitals Model. This describes sustainable development as conserving the five different types of assets that we rely on: Environment - Finance - People - Infrastructure - Community and living off the flows that they generate (rather than depleting the assets themselves). For tourism that means operating within environmental limits (zero carbon resorts, water neutrality etc), helping guests and staff to fulfil their potential, being connected to the local community and ensuring benefits (financial and others) to them trickle down from tourism, creating sustainable infrastructure and of course continuing to profit. Particularly important in this is the role that tourism plays in providing local economic benefits. Pro-poor tourism is not the norm and it is not generally clear how locals are benefitting from the visitors and hotels in their areas - this needs to be more transparent and proven (especially as it is a key argument for travelling). (*more detail on this*

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model can be found in the additional slides that will be included in the full proceedings and in a report that FFTF are about to publish).

4. Leadership beyond leaders: The tourism industry is not traditionally one that pioneers new thinking outside its immediate offer, but it needs to show more leadership on sustainability. At the moment other sectors are doing much more. There are good pockets of activity, often responding to niche markets. But sustainable tourism has to go mainstream and reach the bulk of the people travelling today. That means changes in today's accommodation as well as new builds and it means immediate attention to the tourism infrastructure. We also need more focus on technological solutions to key challenges like aviation and travel.

Comments:

There are mixed figures on how much benefit a package holiday provides to local communities (it is under researched). For some holidays the ODI (Overseas Development Agency, UK) says it is less than 10% of package holiday revenue

Bio-fuel is not yet viable for the airline industry.

There is some potential in developing airship technology and other designs.

Air traffic control could be more efficient.

The lag time in aviation technology is too long and the cost of new developments is too high.

Little is being done to research new solutions to the aviation industry's problems or the long term effects of tourism. The airlines themselves should take the initiative.

Airlines themselves should take more responsibility, funding research studies, for example.

Session 2. Meeting the challenges in Soneva Fushi

A presentation on some of the new initiatives Soneva Fushi has taken to improve their environmental commitments by John Philipson.

It was mentioned that rising oil prices have created an increase in interest at board level in technologies such as deep sea water cooling.

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It was also mentioned that bottled water is being phased out at all Six Senses lodges. Crystal Clear - where minerals are added to water - was used as an example of simple, effective technology that can be used as an alternative. Another aim is to phase out all cling film, polystyrene and other plastic.

Other issues outlined included the zero carbon goal for the two resorts, Eco Centro and social responsibility issues.

Session 3. Sustainable engineering for the Travel and Tourism Industry.

A presentation on how solar energy can effectively be used to produce energy, by Joachim Krueger and Oliver Kopsch.

With negligible costs for the consumer, the initiative of governments buying solar energy from public producers is an obvious direction to go in and should not be seen as a tax. A BBC film on the subject was mentioned for reference.

A question regarding 'buffer technology' was answered as not being ready for the market. Salt was cited as a possible solution but one that has technical difficulties that need resolving first; requiring a large scale, closely supervised operation.

It was noted that energy storage is a problem and that hotels can store some energy using fridges etc. While photovoltaic panels will become more popular, they provide power and not heat.

Air conditioning technology was mentioned as a possible means of storing energy as cold air.

A question regarding the problems of Sterling engines was answered by the fact that they require constant high temperatures - of 800 degrees - to work, and will not work if a cloud passes over them. Turbines, which work at lower temperatures, provide a more viable alternative.

The large area of land required by solar systems was raised as a concern.

It was pointed out that solar can capture 200 times more energy than the equivalent land used to produce biomass.

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Session 4. Water Management Solutions.

A presentation by Oliver Kopsch

Two main points were raised regarding water systems:

1. Reduce
2. Re use

The viability of Natural Swimming Pools was pointed out, and a leaflet showing German examples was referred to, and their viability in the tropics was endorsed.

Other technologies included:

- The development of drip irrigation systems onto 'sweating tubes' made from 75% recycled tyres.
- The development of new polymers for water retention that are fully biodegradable in 3-5 years.
- The technology now exists for 100% closed loop recyclable water systems.
- Various examples of new water management materials for agriculture.

Singapore was mentioned as leading the field in converting waste water into drinking water.

Session 5. International Business Leaders forum

A talk on the International Tourism Partnership (ITP), and International Business Leaders Forum (IBLF), including some key concerns for the T&T Industry in terms of a sustainable perspective, by Lyndall de Marco.

The International Tourism Partnership, founded 15 years ago, seeks to promote responsible tourism through leadership and looks at what the hotel industry is doing in terms of sustainability. It was noted that sustainability and profit can work hand in hand, but that it is currently failing to do so.

The ITP members account for 15,000 hotels and 3 million rooms.

The ITP is independent and creates useful tools for the industry. It was proposed that going green means embracing all aspects of sustainable corporate social responsibility and requires:

- commitment from the top down.

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- motivational, fun staff training.
- environmental management in areas such as bio-diversity protection, hygiene, safety etc.
- a green supply chain.
- responsible leadership for people and communities involved.
- destination protection involving common sense.

The ITP works by establishing and developing partnerships and is moving into human rights issues with the UNWTO.

In answer to the point that there is an apparent dichotomy between the current vogue for green marketing and the actual effective implementation of green marketing with in the industry, it was agreed that 'greenwash' often happened but that the situation was getting better, and that public education was improving.

The point was made that there is no magic 'green button' with which to check credentials, and that architects should take on more responsibility for developments in the future, and that if the green message is maintained, good practice will follow.

Sustainability and profitability will be significant factors for change, that self interest is a powerful motive and that the industry needs more leadership figures like Scandic, who are estimated to have saved 28 million dollars by going green.

Various ITP publications and websites were referred to:

'Environmental Management for Hotels'. Now in 3rd edition. An industry guide to sustainable operations.

'Sustainable Hotels – Siting, Design and Construction'. A new book, all sold, being reprinted. To be used for guidelines by authorities.

'Environmental Benchmarks'. An internet-based benchmark tool focusing on water, energy and waste. So far invested over us\$500. Will produce 1st corporate reports on benchmarks and will report annually.

'SPOT'. Sustainable Performance Operating Tool. An online tool showing hotels how they are performing by filling in a questionnaire. Reports can be saved and can be used to compare with future ones.

'Sustainable Communities Initiative'. Database over 5 key themes. Hotels can input data and get reports as well as document their progress and initiatives.

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'Green Hotelier'. A quarterly subscription magazine focusing on positive things happening within the industry.

'YCI'. Youth Career Initiative. Empowering youth through partnerships - not cheap labour! - covering 9 countries so far, and next year 13.

Session 6. Innovations and low carbon technologies in travel.

6.1. A presentation of the Converging World's model of carbon mitigation by John Pontin. This second generation carbon offset model actively uses all funds and credits generated to generate more. Reference was made to the book, 'The Converging World', by John Pontin and published by Piatkus.

6.2. A presentation on sustainable architecture, focussing primarily on development stage technologies and the Soneva Fushi zero carbon project by Ricardo Moreira.

It was explained that XCO2's approach towards carbon reduction involves the following aspects:

- Move away from traditional linear approaches towards closed systems, in which resources and wastes are integrated to reduce environmental impact;
- The use of a three-stage strategy:
 - Energy efficiency: dealing with cost effectiveness; architects using vernacular architecture; a back to basics approach.
 - Energy efficient supply: the example given was the inefficiency of the typical generator, which is only 30% efficient; it was suggested that the heat produced could be utilised.
 - Renewable energy.
- Highlighting the importance of quantification of CO2 reduction via thermal modelling in the early stages of the project, which provides a useful tool to evaluate the effectiveness of efficiency measures.

The question of whether wave energy or geothermal energy had been explored at Soneva Fushi as with other areas like the Caribbean was asked, to which the reply was that the sea currents were too small and that there was no geo thermal potential, but there might be the potential for wind energy generation.

6.3 A presentation on deep sea water cooling, sent by Dale Jensen, referring in particular to a 1.4 km pipeline in Hawaii.

This will be made available on CD and online

6.4 A presentation on the installation of deep sea water technology at Soneva Fushi by Ralph Rusher.

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Session 1. The built environment - challenges and opportunities.

A presentation by Herbert Giradet

The presentation focused on the challenges facing cities in the 21st century.

London was cited as the first example of unsustainable urban growth, with Tokyo an example of how big the problem can be; 35 million people in its city region. It was pointed out that urban growth is dependant on fossil fuels and access to them.

One car with a 15 year road life will burn 15,000 litres of petrol.

At the beginning of the industrial revolution, CO2 levels were at 280ppm. They are now at 370. The IPCC has asked the question of how far we can let these levels go? It was thought that 550 was acceptable but NASA research has suggested we are already past the tipping point and should reduce. But global growth is at 5% per annum.

It was pointed out that if the Greenland ice melts, thought not to be possible for 500 years but likely within 200, the global sea level will rise by 8 meters.

Logging in the Amazon, one of the factors that can regulate global warming, is still on a massive scale.

Positive examples were cited:

10% of homes in some Chinese cities have solar hot water.

Government initiatives in Germany enabling people to invest in renewable energy have yielded positive economic results. (It was pointed out that solar is a much more efficient use of land than biofuels).

New technology - such as vacuum insulation panels that can be fitted to existing houses - are continually advancing. The conclusions of the film, 'The End of Suburbia', are already inaccurate.

The largest wind turbine - 150 meters tall - generates 7mw.

Solar car parks to power electric cars is an easily foreseeable possibility.

The subject of food production was raised and examples cited:

In Kansas it takes 20 times more energy to produce the food than the energy contained within it.

20 - 40 % of food is wasted by developing countries.

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Examples of positive action:

- Shanghai has set aside 300,000 acres for vegetable production.
- Cuba, where vegetable production has been successfully brought into the urban environment.

The need to mimic natural systems and develop closed loop systems is crucial.

The example of Dongtang was used - a conceptual eco city just commencing construction. To illustrate this, if humans all lived like:

- Londoners we would need 3 planets to sustain us;
- New Yorkers - 5 planets;
- Los Angeleans - 6 planets.
- Dongtan - 1.2 planets

'Surviving the Century', by Herbert Girardet was referred to, as was his new book, 'The Carbon Plan.'

Questions:

It was asked whether nanotechnology and the use of rare metal posed a problem; it was answered that due to rare metal fusing with aluminium, leeching was unlikely. Silicon technology is generally sound but there are some perceived risks with Cadmium Telamide, leading BP to get out of any involvement with it.

The scarcity of some of the elements upon which emergent technology depends was raised as a potential problem; helium, gallium and cadmium in particular.

European hotels are buying into renewable technology, with five big chains cooperating together. NGO's and Trade Unions have prevented actions such as giving waste food away to the poor from being viable.

The question was asked whether the golf course and theme park at Dongtang had been blocked; the answer given was that yes, they had been cancelled and other leisure opportunities were being investigated.

It was mentioned that Greg Norman was developing a sustainable golf course.

It was pointed out that social innovation and technological innovation need to be considered together and examples were suggested:

- Examples were cited in China, Cuba and Cairo - where cows are grazed on roof tops.

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- Seoul, where golf driving ranges on roofs have created new habitats.
- Thailand, where there is a 300 hectare, 40,000 student university using solar powered buses.
- Fuerteventura in the Canary Islands was mentioned as an example of a golf development that has had a positive impact.

Session 2: Eco design villa at Sonva Kiri, Thailand.

A presentation by Louis Thompson.

An outline of the techniques and problems incurred in the development of the 5-star eco-villa at Soneve Kiri.

The issue of large number of bricks required; 10,000 - which were made by hand, by 12 people, in a month - was raised, as was the question of how, if anything, the project might have been done differently in retrospect. The answer was that pre fabricated timber beams would have been an advantage.

The appropriateness of a Californian building design in Thailand was raised and the size of the building; the problems of installing air conditioning in vernacular Thai architecture was the response, and the size was approximately 2,400 square meters.

Hasan Farthi's receipt of the first Aga Khan prize was mentioned.

The question of how the natural swimming pool was kept clean was answered that the pool, 2.6 meters deep, had a solar pump that powered a waterfall that ran water via a reed bed and back into the pool.

Session 3: A tour of Soneva Fushi's waste management system

A presentation by Wayne Wadsworth

The waste management system at Soneva Fushi is built on the principle of 'Waste to Wealth', and the following points were illustrated:

- The process of Pyrolysis, which uses woody waste – 10 to 15 tons per week – makes charcoal for cooking and Bio char for soil conditioning and a highly efficient means of Carbon sequestration. Carbon sequestration.

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- Food waste – 500 to 1000 kg per day - is converted to bio-gas, and liquid fertiliser for growing crops and biomass such as Bamboo which in turn will be used to make more bio mass and building materials.
- A glass crusher crushes glass - 500 kg a month - which is mixed with concrete and used in construction.
- Eco Centro is designed to use waste that reduces our carbon footprint and creates valuable energy and fertility

Sessions 4 – 6: Workshops

Session 4: A workshop on Social Responsibility,

Presented by Jamie Waring

The salient points of the discussion were as follows:

That SERF (Social and environmental Responsibility) funds, like for SFR (Soneva Fushi), should be allocated locally and internationally, with greater emphasis on local allocation as this is more tangible.

That more social responsibility could be promoted via leveraging.

That the VERU system in the Maldives was an example of good working structure incorporating public responsibility for the protection of the islands.

That hotels should provide a strong leadership role which should include brain power and experience, not just revenue streams.

That it's important to 'look at the bigger picture.'

That Turtle Island in Fiji was a good example of social responsibility; room rates have risen from \$125 per night to \$3000 per night by using CSR to boost reputation; Turtle Island have built schools, provided hospitality training, close the resort for two weeks of the year and provided doctors to treat the islanders; they are now 'doing well by doing good.'

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That giving money is not the be all and end all, that an intelligent long term view is important to counter accusations of 'green wash' and that CSR must be sustainable.

That education is key.

That hotels can provide an invaluable local resource if the will is there.

Six key areas were cited using research provided by ITP (see session 5, day 1), namely:

1. employment workplace and staff development
2. supply chain and local economic development
3. community development
4. community projects and partnerships
5. charity works and foundations
6. Destination protection.

Session 5: A workshop on Carbon Mitigation

Presented by Jakob von Uexkull

The salient points of the group discussion were as follows:

Do you start with audit?

That you should not wait for the audit to begin carbon mitigation.

That you should take the lowest hanging fruits.

That electrical prices should be lower, and wasting energy should be punished.

The question was raised whether different carbon mitigation programs should be combined.

That personal CO2 restrictions would require a huge amount of work and labeling and massive education.

That there might be problems with anomalies such as Phoenix, Arizona, which probably would not survive due to its need for air conditioning and that the poor would suffer.

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The Converging World model was discussed and it was noted that timescales for building wind turbines would be reduced to a quarter of that at present if funding was available.

That other projects could be offered to clients using the above model – it was noted that comprehensive information would be needed on all externalities.

That further policy side initiatives could include funding further study into the efficacy of present policies believed to be effectual.

It was agreed that binding International Agreements are needed.

That one possible model might be the international agreement to tackle the ozone layer hole issue.

That there is a need for an international agency to promote renewables.

It was pointed out that the German government now sponsors IRENA which 20 countries have now signed up to.

That economic reform should be always be done in the light of comprehensive cost benefit analysis studies and must include Natural Capital.

Finally, that the best practices should inspire best policies so that they become the norm and the worst are outlawed.

It was pointed out that this item is critical since 3bn tones of carbon are currently being released into the atmosphere. The discussion needs to be deeper and the problem needs to be tackled head on and now.

It was mentioned as an aside that it takes 15,000 litres of water to produce one kg of veal.

Session 6: A workshop on Sustainable Hotels

Presented by Christopher Oakes

For the purpose of the workshop it was decided to look at hotels generically and set aside geographical location factors. The main headings and some of the more salient points:

1. WATER. Capture, storage, neutrality, filtration technology etc.
2. ENERGY. Saving, solar, architecture, fittings, green generation methods.

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3. WASTE. Recycling, fertilizing, irrigation, eco purchasing, green supply chain, limiting batteries and non biodegradeables.
4. MATERIALS. Go local, non toxic, natural materials, responsible purchasing. See www.materialconnection.com.
5. BIODIVERSITY. Encourage as much as possible, use local knowledge.FOOD. Food miles, avoid wastage, use seasonal, slow food, buy local, grow, humane and ethical purchasing.
6. TRANSPORTATION. Encourage walking, biking, 4 stroke not 2, promote longer stays, biofuels, carbon offset.
7. LAND. Green architecture, brown field sites, environmental impact audits, care of surrounding environment, support community, limit erosion, flood control.
8. NOISE. Lessen pollution, decibel measuring and auditing, local noise survey, promote good positive noise eg laughter, bird noise.

For more information on this workshop see Appendix A.

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Session 1: Breakout Group One - Food

Summary presented by Christopher Oakes

Issues raised were as follows:

1. Globalisation; the importance of starting big was mentioned, and that Six Senses should lead by example, as it has done with sustainability generally. The importance of using locally sourced, seasonal food was raised; with rising oil prices this will become the norm, and food will become a luxury item. Though this might be difficult to manage in big cities, with the right education it can work and Six Senses can lead the way
2. Six Senses new project site surveys: the importance of education among the local community and allocating sufficient space for growing produce was mentioned.
3. Supply: the importance of cluster buying was mentioned - for example buying produce for both resorts in the Maldives at the same time; buying in bulk.
4. Waste: The importance of reducing and reusing waste was mentioned. It was pointed out that Soneva Fushi produces 1.4 tons of waste a day - and the example of tuna fish waste, approximately 40-45% of the fish, was cited as an example of the problem. It was suggested that more can be done to reduce waste.
5. Six Senses was an example of intelligent luxury; the question of how to deliver this without compromising the guest's experience was raised, and guest education was suggested as a solution.
6. The importance of maintaining a competitive edge was raised, and the challenge of keeping ahead of the competition without cutting back on the overall experience by cutting menus, for example.
7. Menus: various points pertaining to the menus were raised:
 - a. Buffets, though wasteful, are popular and promote food experimentation.

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- b. With careful menu engineering, it is possible to control the buffet; for example by focusing on the 'catch of the day', reducing the meat options available and increasing the live options to be cooked on the spot. This might require some kitchen redesign but it is possible.
- c. The use of left overs as face masks and body scrubs in the spa was suggested.
- d. The reduction in the number of food items on the room service menu was suggested, while increasing the variety of food on the menu.

Session 2: Breakout Group Two - Education

Summary presented by Jan Peter Bergkvist.

It was decided within the group that this is the most important part of becoming sustainable, namely by increasing the number of stakeholders and explaining the need of and challenge and potential in sustainable behaviour both from a professional and individual perspective.

1. Development

For water and energy there should be strict corporate rules and that localization should have a two way relationship with industry use of water, energy, land and food

It was proposed that there should be an on-site audit, with architect getting the 'feel' of sites before building in order to increase harmony with the site and local tradition. It was suggested that it was sensible to look at every country separately and avoid cookie cut approach, and by doing so break the cost myth, think global but act local and rethink progress and modernity. It was mentioned that sustainability is a moral choice but in a business sense first and foremost a question of competence.

2. Operations

It was suggested that, regarding employees, it is vital to take education seriously and lead by example, from the top down.

Applied English could be taught, for example HKPG - a formalized, incentive based education program that could be linked to promotion.

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But most importantly an easy to understand explanation of how to contribute to a sustainable development through four “golden rules” was proposed, to be implemented by a Green Team at each department/resort, who would host committees, set goals GDO, and perhaps generate internal awards/competitions (motivation/incentive).

They would operate under the principle that "Everything needs to be rethought" ('Planet Chaos' new paradigm) and there is a need to simplify and make the message user friendly and relevant to each department.

It was suggested that every day and week any actions possible to save the environment are questioned and adopted.

Guests and Tour Operators: UNTO responsible traveller - not used – needs to engage, inform, focus on needs and be interesting.

The need to explain the WHY, not just the WHAT and HOW, was stressed.

The need to distribute information as part of guest's reservation and on their arrival was raised.

Guests, model, stage awareness, nationality

The suggestion of encouraging guests to share experience and spend locally was made.

There are too few icons, such as giant shrimp example, bottled water, organic Garden etc.

Supply Chain: It was suggested that there should be strict rules and guidelines for all parties such as architects, builders etc.

The need for an upstream approach to sustainability was mentioned.

Check list and framework coupled with a 'no-no' list

Tied with economic sense (ROI)

Work together - relationships and partnerships.

The importance of finding local suppliers was raised.

Four Golden Rules - 'The four system conditions' TNS

(see: <http://www.naturalstep.ca/systemconditions.html>)

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Value alignment

Children: The importance of mandatory education from early age was mentioned. The idea of a children's pack on sustainability was put forward. The idea for a children's world congress/forum, with representatives from each country, was suggested. The need to lead by example, use practical examples and to adopt a hands-on approach was repeated (Keep It Simple Stupid!) The need to provide access to decision makers was mentioned.

Community: The importance of involving the community was raised - and the use of ex-pat resources and knowledge skills recommended. The principle of 'Train the trainer' - 'teach them how to fish' was suggested and the example of Six Senses at Soneva Fushi was used to show how to influence destination decision makers was made. The example of Palau, where locals cooking for guests once a week, was used as a win win situation. The idea of inviting guests go to the community, for example through dining or excursions, was suggested.

Session 3: Breakout Group Three3 – Certification

Summary presented by Ricardo Moreira.

The questions of why certification is needed and the benefits of certification were addressed as follows:

- Design: the development of a structure with strict certification ensures the utilization of issues often overlooked in the past, engaging people and generating interest.
- Operations: certification creates an environment with benchmark standards and improves the operation, generates public awareness and can drive change.
- The need: certification should provide impartial and credible information to the consumer which in turn pushes the industry forward.

The disadvantages of certification were as follows:

- Very different products are measured by the same standards.
- Weighting may be subjective and perceived as unscientific.
- There may arise a 'box ticking' mentality that limits imagination and creativity.

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- Companies might try to cut corners and do the bare minimum.
- Vested interests.
- Don't always demand performance.

Certification cannot address other issues (needs to be complimented by descriptive information). Potential for social networking to do that.

The question of how to implement certification was addressed as follows:

- By having a rating system rather than a certification.
- By having a standardised international rating.
- By ensuring the rating is consumer based, like a 'trip advisor', to ensure impartiality.
- By ensuring long term evolutionary certification with regular reviews.
- By ensuring certification is relevant to both large chains and small 'mom and pop' operations; the work necessary to obtain a rating should not be time consuming.
- By having sub-specialisation before the variables of location, region, hotel type, operational conditions etc but there should be one core brand.
- By embedding sustainability into their quality standards and reducing the amount of certifications such as different star ratings.
- By making certification applicable to local regions (LEED Indica)

Cedes applicable to EB as well, including operational standards

- By simplifying into one system for consumers sake – need trusted brand for consumers even if there are subsets.
- By providing second generation certification (eg. Google).
- By creating two tier certification (LEED Light) – small properties reduce costs at intro level.
- Voluntary, consumer pressure (carbon disclosure project)

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The question of who gives the certification was raised: Deloitte? UN? WTTC? If it is an industry body it may suffer from a lack of credibility.

A necessary step was suggested of having an umbrella organization which oversees all existing certifications and adds rigour and credibility; new projects can then go straight to the umbrella organization which could manage very different systems.

It was mentioned that there was no need to reinvent the wheel; there are many of these systems being used and although they are not perfect these could be adopted.

It was suggested that it will happen anyway, through social networking for instance and therefore there is a need to avoid confusion.

The following recommendations were made:

- For a coherent strong brand incorporating lots of existing certifications.
- For a complementary system such as 'trip advisor' for sharing experiences.
- For embedding it into a star system, umbrella organization – global eco-labeling network.

Session 4: Breakout Group Four – Climate Change and Carbon Mitigation

Summary presented by Juergen Siedel.

Rationale: the need to make immediate changes NOW!

Goal: carbon mitigation is currently at approx. 380PPM and should be at 350PPM

Assumption: some industry leaders support the theory to gradually reduce. Researchers are however confirming that this is wrong!

Massive action in reduction of carbon emission is required (government, voluntarily and individual levels with behavioral changes are required)

Scheme required: forest protection, soil protection and fossil fuel reduction, with the implementation of strict and only usage of renewable technology:

- to simply set a target with a 80% carbon emission reduction by 2020 is not enough! However through the usage of renewable and carbon off-set to reach a 100% carbon reduction earlier, with the ultimate goal for carbon positivity.

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- to decide on short term, mid term and long term goals and initiatives
- to aim for the lowest hanging fruits first (feasibility and impact)
- to identify immediate hit and most suitable and with highest impact
- to consider 'zero waste and renewable towns' concept

Action:

1. Immediate carbon off-set programme through renewables
2. Any new planned power plant to be renewable technology (especially at emerging worlds)
3. Any existing power plant (fossil fuel and charcoal) power plant to be replaced with renewable technology
4. Charcoal for heat, cooking and soil fertilizing as humidifier to be used
5. Protection of any existing forest and rain forest
6. Re-forestation of any former existing forest and rain forest
7. Absorption of any existing carbon dioxide through forest or sea approach
8. Awareness, training & information (with good leaders and examples)



Samples of renewable scheme: "SUZLON" 1,5MW wind turbine

Investment cost: 1,25GBP=approx. 2,5mUS\$

Income from energy sales: 200,000US\$ annual

Income from CER trading: 300,000tonnes = 100,000US\$

First wind turbine to guarantee the 2nd ones purchase and so on.

In 18 years to have a total 8 wind turbines produced (up and running) of the initial 2 first units. After timeframe of 20 years are continuous 6 units running. Each wind turbine life span is at 20 years.

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Day 3: 8th June 2008. 09.30 - 18.30

Medhuniye Conference Room

Scheme to provide income from energy sales and CER trading to support both the financing of the wind turbine purchase and to support social programme, e.g. SCAD.

SCAD: 25% of energy income goes towards SCAD. This sums up to be approx. 4.5mGBP in 20 years

Plenary Discussion – Accelerated Change

Summary presented by Juergen Siedel

It was stated that the World Future Council had taken the position that to accelerate change governments need to adopt bold policies on sustainability. It has been shown to work in places such as Germany and it leads to economic benefits such as job creation. However the question of whether the group had any other ideas with which to accelerate change was raised.

It was suggested that growing more bio-mass and passed around examples of bio-mass plastics which were indiscernible from normal plastics, were very hard but were bio-degradable. Maybe there is now the technology to produce bio-mass in desert environments.

It was suggested that algae could be the way forward in bio-mass production.

An example in Jordan was referred to. And also that bamboo has great potential to radically change city sewerage systems with the bamboo closing the loop by being used as a building material.

A cradle to cradle system was suggested and reference made to Michael Brangaard.

The Princeton Wedges Idea was mentioned as technologies have now improved but utilized in a more cyclical manner, but it was cited as having problems as it allows for an increase in carbon emissions from current levels and includes a large nuclear element. (see 'An Inconvenient Truth')

One does not necessarily need to mitigate locally but rather one should look for the most efficient way to mitigate carbon emissions to achieve best value - 'lowest hanging fruit' and by encouraging development to shift to more sustainable geographical locations.

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Carbon mitigation and trading mechanisms are generally currently not working and that those that are are massively oversupplied.

It is imperative to keep pushing on a micro level, and that once standards are set others will follow. Everyone can make a difference.

The Fijian example was mentioned, which set benchmarks for Maldivian development 20 years ago but the Fijians are now looking to the Maldives for their next generation resorts.

The discussion was closed by noting the key issues for driving change, namely:

- Leadership
- Policy
- Education
- Market mechanisms
- Creating visions

Keynote speech

A transcript of the speech has been forwarded by JVU Jakob@worldfuturecouncil.org.

Meeting ends

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Appendices

Appendix A

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Appendices

Day 2: Sustainable Hotels – detailed notes

First thoughts:

City vs. urban

Equatorial

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- Water
- Energy
- Waste
- Design
- Materials
- Nature
- Footprinting with carbon off-set
- Certification
- Food, wellness and water
- Chemicals, fuels and gas
- Transportation
- Noise
 - Communication
 - Training & awareness
 - Social & communities
 - Accessibility

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Appendices

A. White hat

- Water
- Energy
- Materials
- Bio diversity
- Food
- Transportation
- Nature
- Land
- Health/well being
- Noise
- Aesthetics
 - Environmental
 - Social
 - Financial
 - People
 - Infrastructure

Overriding principles:

- a. Approval
- b. Not to be a burden, easy/KISS
- c. Forward progressive

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- d. Viability
- e. Quality
- f. Overall quality experience

B. Green hat

Water

- Capture/storage
- Neutrality
- Filtration technology
- Waste treatment and distribution
- Urine separation
- Disinfection system
- Evac system (vacuum)
- Integrated systems
- Solar desalination
- Water reduction system
- Heat/cool storage
- Water theatre/seawater greenhouse
- Subsurface irrigation
- Leak monitoring
- Reedbeds/wetland
- Salt water pools

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Appendices

- Ecological sanitation
- Ecoplay/greywater
- Separate piping structures
- Bottling, drinking & mineralized water 'wellness water concept'

Energy

- Saving features
- Solar design
- Ventilation
- Solar architecture
- Biomass/gas
- Bio fuel
- Saving incentives/award
- Green gym, charging bikes
- Natural shading
- Passive cooling
- CHP plant
- Tri-generation
- Natural light
- Geo thermal
- Air drying
- Desiccant cooling and energy recovery wheels

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Appendices

- Micro hydro
- Wind turbine
- Sensors
- Orientation
- Insulation
- LED lights
- Electrical cars and buggies
- Ground source heat pumps
- Hybrid technology
- Building management system, BMS
- Prefab applications and buildings
- Tidal wave technology\deep sea water cooling

Waste

- Waste to wealth “ECO Centro” concept
- Recycle design
- Separation
- Composting and fertilizing
- Bio cycle/techno cycle
- Design for revising
- Nutrient recycling
- Eliminate local pollution (filters)

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Appendices

- ECO purchasing
- Packaging and storage to be eliminated
- Emission control
- Product return scheme
- Passive waste control
- Hazard waste control
- No bleach, no plastic and no chlorine
- Mulcher & grinder
- “no waste” awareness
- Avoid:
 - non-biodegradable materials
 - Natural anaerobic digestion

Materials

- Local
- Natural
- Cement vs. high fly ash?.avoid cement due to embodied energy
- Cheap not nasty, cost effective
- Certified wood
- No hardwood
- Fair trade
- Bamboo

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Appendices

- Life span/durable
- Natural packaging
- Life cycle analysis
- Terracotta
- Rammed technology
- Recycle
- www.auroville.com
- www.earthbuildinginstitute.com
- www.materialconnection.com
- Responsible purchasing

Biodiversity

- Lots
- Conservation
- Help local communities
- Maximize biodiversity
- Local guiding
- Nature trips
- Wildlife programmes
- Urban → organic garden, wildlife
- Natural pest control
- Identify/tracking

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Appendices

- Indigenous species

Food/wellness

- Food miles
- Packaging
- Less buffet, portioned
- Red list/no no list
- Seasonal fruit & vegetables
- SLOW programme, local
- Pigs livestock (in situ)
- Organic garden
- Bulk ordering
- Bottle on site
- Glass
- Local authentic cuisine
- Portion buffets
- Menu engineering (+ in villa dining)
 - Seasonal
 - Small menus (verbal)
 - Additional daily choices
- On site processing
- Humane purchasing

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Appendices

- Specific diets
- Healthy
- Garden (spa Kitchen)
- Shade grown
- Fair trade
- Complimentary pedometers

Transportation

- Feet
- Bicycles
- Solar boats and buggies
- Transportation of food by boat/ship
- Made to measure containers
- Longer stay promotion (ICT/special deals)
- Local clients promotions
- Collective purchasing
- Local purchasing
- Carbon off-set
- Bio fuel (gethroba plant)
- Local fuel production
- Local growing

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Appendices

Land

- Orientation of buildings
- Construction regulation on site (fines)
- Use brown field sites
- Mobile structures (modular prefab)
- EIA audit
- Care for trees
- Use shade (natural) warmer climates
- Design that limits footprint (e.g. surface area not touching ground)
- Infrastructure supporting community
- Climate change proof
- Erosion and flood control
- Benefit from gravity, gravity system
- Preserve walkways and natural cycle
- Functional landscaping
- Natural vent
- Electrical pollution control

Noise

- Cellulose insulation (egg cartons)
- Mobile free zones
- Canned music, natural music, water music

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Appendices

- Silent disco
- Bird nesting, for natural sound
- Transportation, location near airports
- Decibel measuring noise
- Local noise survey
- Camp on site visit
- Laughter, positive social noise
- Story tellers, theatre

-----End of Proceedings-----