MALIAU BASIN CONSERVATION AREA
SABAH

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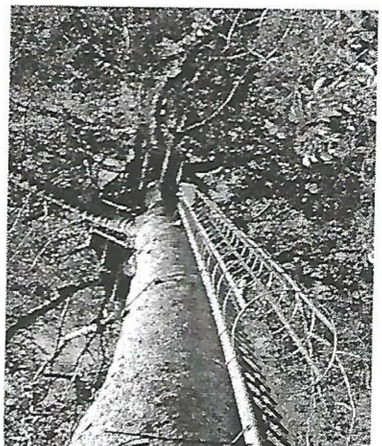
SUSTAINABLE TOURISM DEVELOPMENT PLAN

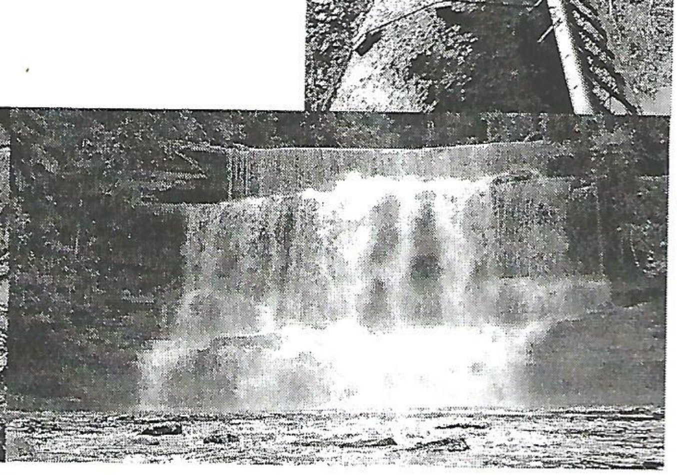
2006 – 2013

Conservation And Environmental Management Division

YAYASAN SABAH GROUP

Part IV
Managing Sustainable Tourism





7 TOURISM GUIDELINES

7.1 INTRODUCTION

As the impacts of tourism become apparent, concern about the quality of the environment and the future of the tourism industry begin to emerge. It is clear that sustainable tourism can be interpreted in a variety of ways, from small-scale community ventures to environmental/technical management at the site. The concept of "best practice" environmental management is now widely accepted as a mean of achieving total quality management.

This chapter attempts to provide appropriate guidelines to manage visitors and facilities in MBCA.

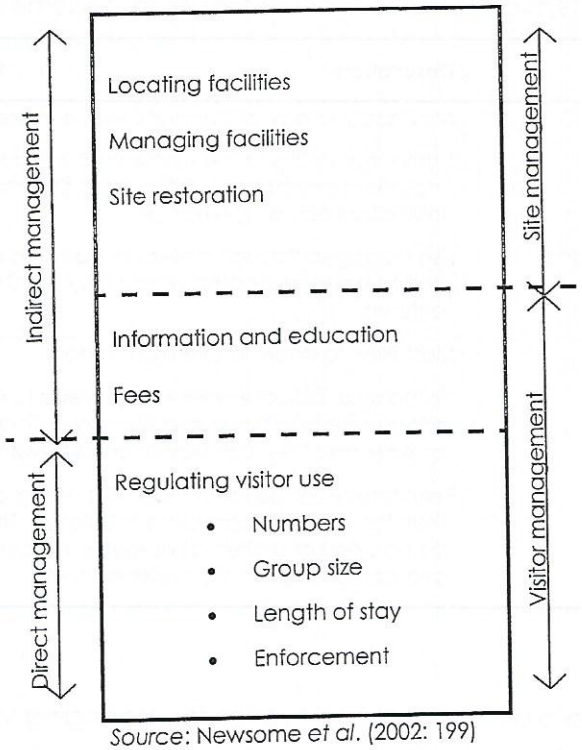
7.2 VISITOR MANAGEMENT

It has to be noted by all (resource manager, planners, and politicians) to accept the fact that tourism, by its very nature, is an agent of change. That is to say, that wherever tourism was developed it would bring about some element of change to the environment. In some places this may be minimal, in others more significant, with the key to sustainability being the ability to manage this change within acceptable limits. The challenge for resource manager is the ability to determine and act when "enough is enough".

Managing visitors is often a vital strategy in mitigating conflicts because the conservation purpose of protected areas resists extensive manipulation of the natural and cultural resources. The success of its management therefore involves fulfilling visitor needs while at the same time protecting the resource base of tourism supply. The function of visitor management is "that of enhancing the social environment in order to maximise the recreation experience and is considered to be fundamental in park management".

Management actions in MBCA can be described as being either site or visitor management (refer to **Figure 7.1**). Site management seeks to control visitors through actions at the sites where the use occurs. Sites include roads and trails, terminus points (i.e. lodges, camp grounds, water bodies). It relies on locating use in the more durable parts of the landscape and designating and managing sites and associated facilities to minimise visitor impacts.

As for visitor management, it focuses on managing visitors themselves through regulating use, communicating with them and providing education. It seeks to influence the amount, type and distribution of use as well as visitor behaviour. Actions include regulating visitor numbers, group size and length of stay, using deterrence and enforcement, communicating with visitors and providing education.



Source: Newsome *et al.* (2002: 199)

Figure 7.1: Ways to Managing Visitors in PAs

At the core of sustainable tourism lies good practice in visitor management. It is an approach aims to protect the environment while providing for visitor enjoyment. Visitor management covers a broad spectrum of strategies and tools but generally, there are three main areas - as shown in **Table 7.1**.

Table 7.1: Summary of Visitor Management Strategies

CONTROL VOLUME (e.g. limit numbers, encourage alternative visit timing and locations)
MODIFY BEHAVIOUR (e.g. codes of conduct, signposting)
ADAPT RESOURCE (e.g. harden foothpath, construct purpose-built facilities)

Limiting or restricting visitors to certain identified areas of high impacts has been receiving supports from visitors. Such restrictions are shown in **Table 7.2**. It can either be limiting the numbers of visitor to designated areas or limiting the types of activity. In addition, there is the need to adequately communicate such restrictions among visitors for such direct approaches.

Table 7.2: Nature and Extent of Restrictions on Visitor Use in Wilderness Area

Restriction method	Descriptions
1. Limit entry to an area	May apply to day or overnight visitors, more often the latter.
Whole area	Number of visitors to the whole area is regulated. Applications include the number of visitors using the trails, number of groups/ individuals camping overnight.
Entry points – all or specified ones	Use managed through individual trailhead quotas with visitors free to travel and camp where they want once they have entered.
2. Limit activities once in the area	Most likely to apply to overnight visitors.
Campsites/zones specified	Visitors must indicate where they intend to camp each night – either a site or within a specified area. There may be restrictions on how long they can stay at one site/within one zone.
Travel routes specified	Permits may be issued for itineraries linking campsites, rather than for individual campsites in isolation. This allows itineraries to be adjusted and alternative routes selected if space is not available at sites on the preferred route.

Table 7.3 sets out a list of possible strategies and tactics for managing visitor number and coping with high levels of use. Several different strategies may be applied at any one time. Common sense and some basic research may suggest the best combination in implementing the strategies for MBCA when the needs appear.

Table 7.3: Strategies and Tactics for Managing High Levels of Use

Strategy	Management Tactics and Techniques
Reduce use of the entire area	• Limit number of visitors in the entire area; • Limit length of stay; • Encourage use of other areas in MBCA; • Require certain skills and/or equipment; • Charge a flat visitor fee; and • Make access more difficult in all wilderness areas.
Reduce use of problem areas	• Inform about problem area and alternative areas; • Discourage or prohibit use of problem areas; • Limit number of visitors in problem areas; • Encourage/require a stay limit in problem areas; • Make access harder/easier to areas; • Eliminate facilities/attractions in problem areas, improve facilities/attractions in alternative areas; • Establish different skill/equipment requirements; and • Charge differential visitor fees.
Modify the location of use within problem areas	• Discourage/prohibit camping; • Encourage/permit camping in certain areas; • Locate facilities on durable sites; • Concentrate use through facility design or info; • Discourage/prohibit off-trail travel; and • Segregate different types of visitors.
Modify the timing of use	• Encourage use outside of peak use periods; • Discourage/ban use when impact potential high; and • Fees in periods of high use/high impact potential.

Modify type of use and visitor behaviour	• Discourage/ban damaging practices/equipment; • Encourage/require behaviour, skills, equipment; • Teach a wilderness ethic; • Encourage/require a party size and/or limit on number visitors in group; • Discourage/prohibit pets or domesticated animals; and • Discourage/prohibit overnight use.
Modify visitor expectation	• Inform visitors about appropriate MBCA's objectives; and • Inform about potential conditions in MBCA.
Increase the resistance of the resource	• Shield the site from impact; and • Strengthen the site from impact.
Maintain/rehabilitate resource	• Remove problem; and • Maintain/rehabilitate impacted locations.

Source: Eagles *et al.* (2002: 88-89)

7.3 DEVELOPMENT AND IMPLEMENTATION OF GUIDELINES

Guidelines are a fundamental communication tool to reduce visitor impacts in PAs. They can be particularly useful before enforceable regulations governing visitor behaviours are established. Most guidelines are targeted at visitors, and rarely include staff or concessionaires. Hence, it is important that guidelines need to be carefully targeted to the audience intended to benefit from them.

Listed are several types of guidelines that can be addressed either in a general set or in a series designated for each group, such as :

a. Visitors (refer to **Section 7.4**)

- General guidelines (point of entry, rules and regulations for all visitors);
- Visitors in groups and unescorted day-use visitors; and
- Scientists and Naturalists.

b. Concessionaire

- Vendors; and
- Tour operators.

c. Hospitality services

- Frontliners;
- Housekeeping; and
- Food & Beverage.

d. Management

- Staff, general workers; and
- Local community.

e. Facilities (refer to **Section 7.5**)

- Buildings; and
- Waste management.

7.3.1 Techniques for Generating Guidelines

Key points to consider when beginning to compile a set of guidelines, i.e.:

- Decide who is the primary audience for the guidelines;
- Identify the theme or key thrust of the guidelines (e.g. environmental protection or increased environmental awareness);
- Get technical assistance from experts who have studied impacts of visitors in such fragile environment;
- Gathers all the partners concerned. Form a committee including resource manager, guides, commercial operators, vendors, etc.);
- Set objectives and formulate a way to evaluate whether the objectives have been met;
- Work up the document and send it back and forth between the committee and technical experts for review and criticism; and
- Create a distribution plan for the guideline document.

7.3.2 Points for Guidelines Review

It is necessary to take into consideration the points (ecological, social and economics) listed below when drafting guidelines (refer to **Table 7.4**).

Ecological guidelines are the backbone of a guideline programme, often designed by natural resource specialists experienced in the impacts of visitor on local ecosystem. In the case of social guidelines, it is best generated by local communities or leaders.

Table 7.4: Points to be Considered for Guidelines Preparation

Ecological	Social	Economics
• Garbage disposal • Human-waste treatment • Campsite activities • Trail conditions • Feeding or touching animals • Protection of clean water supply • Noise levels • Visual impact of visitor on other visitors • Group size • Collecting natural souvenirs • Endangered species protection • Viewing and photography	• Local customs and tradition • Use and abuse of technological equipment • Invasion of privacy • Off-limit areas • Smoking	• Purchasing of local products • Making donations to local non-profit organisation

7.3.3 Implementing Guidelines

Guidelines for visitors are needed at a variety of different times during a visit to MBCA. Specific guidelines are the most appropriate when made available on site. If visitors can view the impact of their visitation or see the fragility of the natural area being protected after reading the guidelines, it will make all the do's and don'ts more clear.

It is particularly effective to back-up printed guidelines with a briefing, where applicable. The ideal time to offer the briefing is right before departing for the trip. Naturalist guides should be knowledgeable about visitors' impact.

a. Distributions

It is helpful to make guidelines available to all. Some possible outlets include :

- Leaflets/brochures;
- Point of entry;
- Visitor Centre (hand-outs and signs);
- Local vendors or concessionaires;
- Outfitter sales desks (e.g. bicycle rental shops);
- Contract documents, etc.

b. Evaluation

From past experiences, little has been done to evaluate the effectiveness of guidelines, including those of rules and regulations. If the objectives of the guidelines have been carefully defined and relate to specific sites or visitors, guideline effectiveness can be measured by assessing the relevant level of visitor impact on the target areas.

If a questionnaire is printed and distributed to visitors, it can serve as important visitor feedback mechanisms. The feedback may be extremely valuable and bring out examples that could be incorporated into a revised document.

Questionnaire should include socio-demographic profile of respondents, satisfaction (expectation vs outcome), and potential improvement expected.

7.4 GUIDELINES FOR VISITORS

Several different guidelines for visitors are available from different agencies in the world. Code of conduct or guidelines is a set of expectation, behaviours or rules prepared by the management to influence the attitudes and behaviour of visitors. It is meant to help visitors improve their environmental management and minimise their impacts. Listed below are two set of guidelines that can be improvised for MBCA (refer to **Table 7.5** and **Table 7.6**).

Table 7.5: Principles of "Leave No Trace" Low Impact Visitors' Programme

Principle	Description
1. Plan ahead and prepare	Travel in small groups, with appropriate equipment.
2. Camp and travel on durable surfaces	In high use areas, concentrate use on impacted/hardened surfaces (so the next group finds a clean and attractive site).
	In low use areas, disperse use and impacts (so the next group does not recognise the campsite).
	In all situations, stay off lightly impacted sites – they are the most vulnerable to further damage.
3. Dispose of waste properly	Dispose of human waste in toilets or buried (refer to **Table 7.x**).
	Pack out litter and food waste.
4. Leave what you find	Avoid tree damage, moving soil, building rock cairns or marking trees or rock surfaces.
5. Minimise campfire impacts	Cook on stoves and minimise use of, or do not use, campfires.
6. Respect wildlife	Avoid scaring or harassing wildlife.
7. Be considerate of other visitors	Respect solitude experiences being sought by others.

Table 7.6: The Malaysian Nature Society Country Code.

More and more people are learning to enjoy our natural world. This automatically puts pressure on the environment. All of us bear a responsibility to ensure that the outdoors is not damaged by our activities. In this spirit we offer a Country Code, guidelines to help preserve the environment for the future.

1. Stay on established trails.
2. Do not litter. If there are proper receptacles for rubbish, use them; otherwise carry your rubbish out with you.
3. Keep trails and campgrounds clean at all times.
4. Do not start fire.
5. Do not relieve yourself near rivers, streams or any water sources.
6. Always bring a first aid kit.
7. Bring along medication for your own allergies. Always notify the leader of any allergies that you may have and what he/she must do in case of an accident or emergency.
8. Never go into the forest alone. Always inform someone as to where you are going and when you expect to be back.
9. If police permits are required, apply for them in advance. Otherwise inform the nearest police station before going into the forest and let them know when you return.
10. Do not leave graffiti anywhere.
11. Do not disturb, kill or remove any plant or animal.
12. Be quiet (!). Observe and listen to the voices of the forest.

7.5 GUIDELINES FOR FACILITIES

Visitor facilities and programmes within MBCA should act as standard-setters in environmentally sensitive design and operations. Good design and sympathetic operations can increase local and visitors' awareness of key values, and demonstrate to all visitors the management's commitment to environmental protection. This can be done by:

- Minimising the negative environmental impact of visitor support services;
- Creating an atmosphere in which visitors feel they are in a special place; and
- Setting an example of environmentally sensitive design and operation practices, to educate and demonstrate the value and practicality of sustainable, innovative and effective solutions.

Table 7.7 provides guidelines for environmentally and culturally sensitive design and operation of facilities in MBCA.

Table 7.7: Guidelines for Environmentally and Culturally Sensitive Facilities

Aspects	Guidelines
Environmental Impact Assessment	• Consider if a detailed environmental assessment is required; • Develop a mitigation plan, where required.
Landscaping and Site Design	• Develop a context plan - examining the entire area and community, including value views and resources; • Develop a resource management plan for MBCA, including the relationship with the surrounding adjacent protected areas (PAs), addressing zoning and access; • Develop a site plan, focusing on detailed design. This should minimise site disturbance, physical intrusion and intervention; • Tree management considers tree retention, relocation or replacement; • Plant vegetation to supply a more natural environment that provides habitat for birds, mammals and other wildlife; • Use indigenous species for landscaping; • Ensure linkages are considered (for land use, human circulation, nearby trails, other facilities, campsites, etc.).
Built Facilities	• Height and mass should be in scale with existing vegetation and topography; • Design guidelines should recognise the history of the place, cultural characteristics and indigenous or vernacular design features, colours, etc.; • Facilities should be constructed for energy efficiency (EE), using renewable energy (RE) wherever possible.
Resource Conservation and Consumption	• Design and operate services so as to minimise use and production of water, energy, waste, sewage, effluent, noise, light and any other emissions; • Encourage the use of renewable energy (RE) sources; • Consider a permaculture approach (which mimics the interconnectedness and diversity of flora and fauna in natural systems) to turn waste into resources and problems into opportunities.
Materials	• Materials should be indigenous, appropriate to the area, and involve low maintenance; • Materials used in construction should be "sourced" to ensure that they come from sustainable production systems;

	• Ensure that all materials brought onto the site for construction are used – apply a "no waste" condition to contractors.
New and Low Impact Technologies	• Use new technologies in construction and operations where appropriate, practical, cost effective, and where there are no perverse effects elsewhere; • Use new technologies, which are more effective in stand-alone equipment and vehicles, as well as facilities.
Services	• Develop and implement service standards to meet the needs of all stakeholders – visitors, agencies, private sector, staff.
Quality Control	• If guidelines and conditions of operation of the facilities are clear, reporting or decisions should be simple and clear; • Baseline information should be maintained (ideally from pre-construction) so as to assess what, if any, impacts may occur as a result of construction and operations. These may be very simple observations, or quite complex; • Set conditions of operation and timelines such that the developer/concessionaire can afford to invest in quality and visitor satisfaction, as well as obtain a reasonable return on the investment; • Initiate regular meetings with managers and facility operators to help resolve problems or issues.
Green Practices	• Develop green purchase policies; • Use biodegradable cleaning products; • Use alternatives to watering, such as mulching, alternate mowing and composting; • Develop an integrated pest management plan; • Use bulk or re-usable storage containers; • Keep all systems and equipment well maintained; • Encourage staff vehicle pooling for staff transport to destinations; • Ensure marketing materials are environmentally sensitive, and use electronic communications.
Programming	• Reward staff for creativity and monitoring; • Involve visitors in developing ongoing improvements; • Manage human use - a human use strategy (see above) assists this; • Consider partnerships with others (either private or public agencies) to assist in programming; • Develop high staff to client ratios; • Build monitoring into programme activities.
Relationship with the Local Communities	• Consult with the local community before development or significant changes in activities; • Maximise employment opportunities with the local community; • Buy goods and services locally, and encourage "green" products and services; • Assist local organisations (e.g. Sabah Nature Club), provide discounted services, or donate a percentage of fees or profits to a worthy local cause; • Encourage visitors to spend more time in MBCA; • Offer work experience or training options.

Source: Eagles *et al.* (2002: 66-67)

8 LOCAL COMMUNITIES

8.1 INTRODUCTION

The involvement of local communities from surrounding areas of MBCA need to be considered. Tourism is increasingly seen as a key community development tool, with the recognition of its economic contribution in bolstering stagnating economies and diversifying existing sectors, and its ability to unify community members. Tourism development is said to affect change in the quality of life of members of the local community. The participation of local communities has the ability to influence the outcome of development in MBCA.

This chapter provides some of the potential benefits that could be generated for the local communities through employment and other services.

8.2 ROLES IN DECISION-MAKING

It must be realised that conservation objectives could not be achieved only through regulations that were not developed in consideration of local community concerns. Conservation policies that focus only on ecosystem conservation and exclude local community interests, especially in areas where human settlement existed long before the gazettement of the area, do not support sustainable development as a conservation tool.

Many disputes between local community and conservation authorities over the use and access of natural resources have occurred in the past. Using strong enforcement tactics does not resolve the conflict. Discussions are the basic mechanism through which learning processes and negotiations are started. All stakeholder groups must be willing to listen to the concerns of the other parties involved and then begin to work towards actions that are acceptable to all. Local community participation in planning and decision-making in management are key method used to gain support of MBCA's conservation objectives.

Resource managers must begin to see protected areas not just in the natural conservation context, but also in the cultural and socio-economic contexts of local communities. New approaches need to be developed and applied that support sustainability of all these aspects. Protected areas cannot implement their own functions when they are isolated from local communities. They can best fulfil their role when a cooperative system based on partnership with local community is established.

8.3 ECONOMIC OPPORTUNITIES

Different economic activities can be created for the local communities (refer to **Figure 8.1**). The formation of a village cooperative is essential (refer to **section 8.3.4**). Two key

areas that are considered appropriate are those "inside and outside" of MBCA. Here, the "outside" are those products that are available from the community, such as handicrafts, agricultural products or freshwater fishes. As for "inside", it includes guiding, porters, homestay or operating restaurants.

Assistance from the Federal's Rural Development Ministry, state development officer and Sabah Federal Development Department can be obtained in terms of expertise or finance.

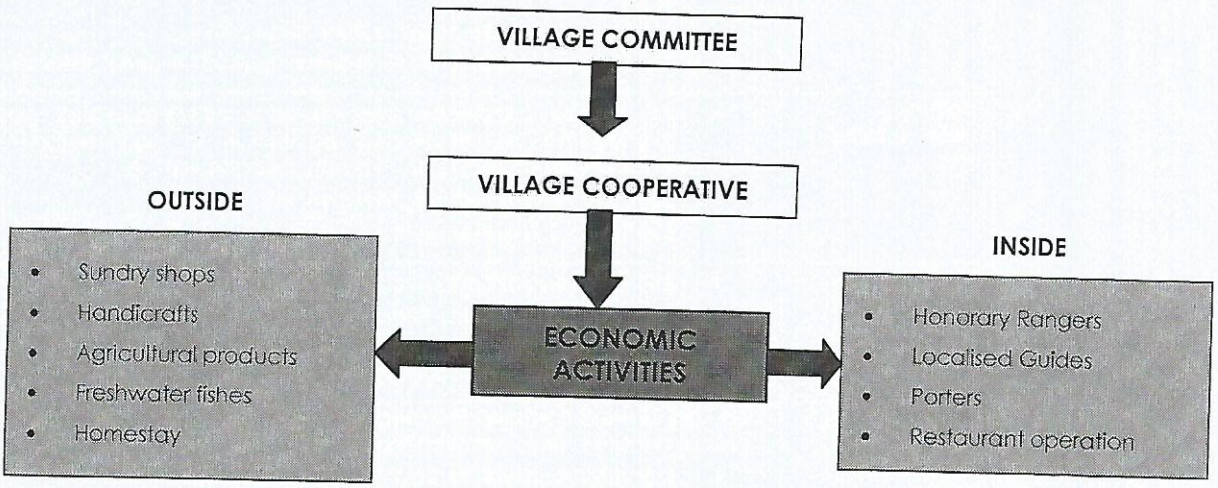


Figure 8.1: Sustainable Economic Opportunities for Local Community

Note: For security reason, the needs to designate zones permissible for these local communities within MBCA need to be identified to protect visitors. This is to avoid misunderstanding between local community and visitors should incidents such as lost of personnel effects, sexual harassments and any other negative implications happened.

The following sub-sections briefly outline several services that could be utilised inside MBCA from the local communities.

8.3.1 Honorary Rangers

The appointment of honorary rangers among local community would provide additional enforcement arms to MBCA. A comprehensive training module and the process of identifying potential candidates need to be developed (refer to **Table 8.1**). However, such appointment need to be properly monitored as it was found out in Sarawak that the appointment was considered a burden to the candidates and some were found to be involved in the illegal trading of wildlife meat (The Star, 30 April 2005).

The development of the training programme must be done with the Department of Wildlife and Department of Forestry, and in addition the *Fauna Conservation Ordinance (1963)* and *Forests (Amendment) Enactment (1984)* need to be

reviewed to accommodate the role of honorary rangers. Honorary rangers must be "empowered" by the Wildlife Department and Forestry Department to arrest illegal wildlife hunters and those caught removing or collecting forest produces.

Table 8.1: Guidelines for Honorary Rangers

Characteristics of candidates	:	• A team from each village; • Composition must include the village head plus between 3 to 10 members; • Must be able to read and communicate in Bahasa Malaysia (at least); • Must be passionate about conservation efforts; • Must have qualities that are trustworthy, reliable and hardworking.
Training (refer to **Table 5.9**)	:	• All potential candidates must attend a minimum 3-days training module (to be developed by MBCA in cooperation with Department of Wildlife and Forestry Department); • To undergo basic oral examination; and • Certificate to be awarded to qualified candidates.
Terms of appointment	:	• All initial appointment on a 1 year probation; • After initial probation, honorary rangers are to be evaluated for their performance to see if they could be confirmed; • Confirmed honorary rangers are appointed on a 3-years term.
Reward	:	Several of the recommended mechanisms can be considered as reward (either choose one or combination) : • Monthly incentives for each honorary ranger; or • Exemption from user fees to enter MBCA plus discount to purchase goods/foods while in MBCA; or • Reward system based upon success of cases (certain percentage of the fines to be given to the individual, group or village who caught or report the incident), and this has to be worked out as all fines collected goes to the state government; or • Any other rewards considered to be appropriate by MBCA.

The Sarawak Forestry Corporation has successfully implemented the programme and it is appropriate that MBCA works closely with them to develop the programme and looks at its strengths and weaknesses.

8.3.2 Localised Guides and Porters

The need to provide employment to local community as localised guides and porters need to be considered. However, the selection process must be stringent so that only those interested are accommodated for the training and subsequently provided with opportunity to work in MBCA. **Table 5.3** provides the requirements for localised guides while **Table 8.2** illustrates those of porters.

MBCA is required to develop the appropriate training programme in collaboration with other agencies, i.e. Ministry of Tourism, Sabah Tourism Board, Sabah Tourist Guides Association, Department of Wildlife and Department of Forestry. In addition to that, Universiti Malaysia Sabah can be included in developing the programme.

Those localised guides and porters that are registered with MBCA to provide their services are not necessarily employee of MBCA, but it would be appropriate if

MBCA is to provide medical benefits and group insurance coverage for accidents. Guidelines on Standard Operating Procedures (SOP) and Rules and Regulations (R&R) need to be developed by MBCA.

The formation of a cooperative can be seen as an alternative to promote the employer-employee relationship. This cooperative will be the umbrella for all businesses or concessionaire (refer to **Section 8.3.4**).

Table 8.2: Characteristics of Porters

a. Qualification • Must have completed at least Primary Six; • Know how to read and write in Bahasa Malaysia; • Must be fit; • Keen interest in conservation work.
b. Training • To attend a basic 3-day introductory training programme to be conducted by MBCA; • Must be registered with MBCA as porter.
c. Rewards • Porters are to be paid appropriately in accordance to rates that are agreed upon by MBCA and local community; • Entitle to discounted goods in MBCA (e.g. meals, T-shirts, etc.); • Eligible to medical benefits; • Eligible for group insurance coverage that will be provided by MBCA; • Porters are eligible to undergo training as localised guide upon recommendation by MBCA.

8.3.3 Hospitality Services

The provision of hospitality services for concessionaire includes the restaurant or canteen operation, running souvenir outlets, accommodation and transportation. **Table 8.3** shows some of the services that could be provided by the local community.

Table 8.3: Hospitality Services by Local Community

Restaurant or Canteen operation	:	• Operate outlet; • Provide meals to visitors; • Outsource local goods from local community for restaurant or canteen (e.g. vegetables, fruits, rice, etc.); • Provide necessary sundry goods for visitors (e.g. batteries, torchlight, snacks, etc.).
Souvenir outlet	:	• Operate outlet; • Outsourced handicrafts from local community
Accommodation	:	• Housekeeping services (e.g. changing of bed sheets, room cleaning, toilets, etc.); • Provides homestay for visitors.
Transportation	:	• To provide land and river transportation for visitors to MBCA.
Others	:	• Landscape maintenance (e.g. grass cutting, site cleaning, etc.) • Trail maintenance (clearing of trails, repair to damaged bridges, etc.); • Cultural performance.

8.3.4 Others

The formation of cooperative by local communities is encouraged to handle bookings of localised guides, porters and managing the SME businesses. The formation of a cooperative under the *Cooperative Societies Ordinance, No. 3 of 1958* by the local community should be encouraged. It could be appointed as the main concessionaire to some of the facilities or services in MBCA, e.g. restaurant or canteen at Security Gate, housekeeping, guide and porter services, etc. (refer to **Table 8.3**). Members of the cooperative are local community from the area, with 10 annually elected committee members responsible for its management. In addition an advisor must be appointed, i.e. the manager of MBCA, to represent the interest of MBCA and provides proper guidance to the cooperative members. An initial seed should be provided by MBCA, i.e. a token sum to get the cooperative moving.

As shown in **Table 8.4**, there are several possible benefits that could be provided to those who subscribe to the cooperative as workers or members (more benefits could be added or revised). The concept of cooperative among local communities in PAs will enhance the sustainable development of tourism in MBCA.

Table 8.4: Potential Benefits as Member of the Cooperative

Membership	a. Membership fee	• RM10.00 per member.
	b. Investment	• minimum = 10 shares @ RM10.00 per share; • maximum = not more than 20.0% of the total paid-up of the cooperative.
Benefits (based upon profit after taxation)	a. workers (non-member)	• one or two months bonus; • medical; • insurance;
	b. members	• 10.0% for dividend basing on shares invested; • 10.0% for festive bonus, divided equally among members; • 10.0% for sport funds, upon application; • 10.0% for welfare (death, etc.), upon application; • educational fund for needy school children of members, upto RM500; • 15.0% discount for purchase of goods or meals;

8.4 AWARENESS CREATION

Creating awareness among community on the prospects and benefits of tourism need to be conducted. Assistance from public agencies towards technical support, training and financial needs to be provided. Through such programme, it would facilitate the preservation of local cultures. **Figure 8.2** illustrates the framework of such programme.

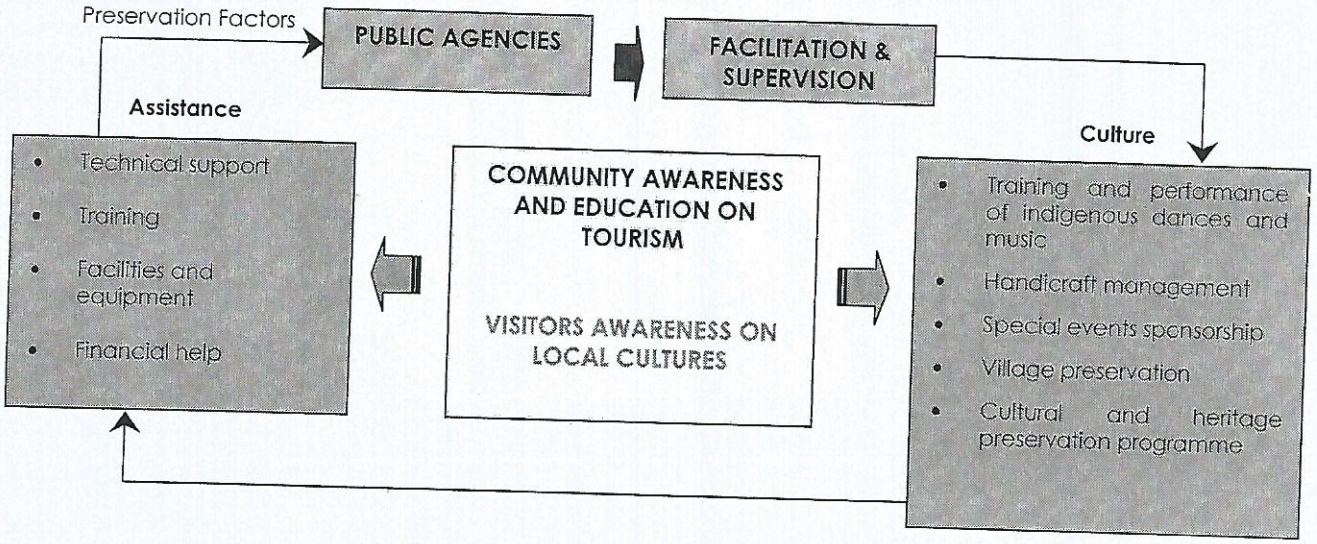


Figure 8.2: Socio-cultural Programme for Local Community

8.5 BUDGET

The proposed for local communities are RM0.705 million over the years (refer to **Table 8.5**). Among others, it includes training (RM0.474 million), seed money for the establishment of a cooperative (RM70,000) and an additional sum to assist the running of several programmes (RM0.161 million).

Table 8.5: Budget for Local Communities Programme (Capacity Building) (RM thousand)

Description			Timeframe (2005 – 2012)								Amount	Total Amount
			05	06	07	08	09	10	11	12		
1.0	**Training**											
	1.1	Honorary Rangers		50	5	3	3	3	50	5	119	
	1.2	Naturalist Guides		30	10		10		50		100	
	1.3	Localised Guides		50	10	5	3	3	50	10	131	
	1.4	Porters		10	5	2	2	2	5	3	29	
	1.5	Hospitality Services (refer to Table 8.3)										
		1.4.1 Restaurants & canteen		3	2	1	1	1	3	2	13	
		1.4.2 Souvenir outlets		1		1			2	1	5	
		1.4.3 Accommodation		3	2	1		1	2	1	10	
		1.4.4 Transportation		1	1	1	1	1	1	1	7	
		1.4.5 Others		10	10	5	5	5	20	5	60	**474**
2.0	**Cooperative** (seed money)				10		30		30		70	**70**
3.0	**Assistance to run programme** (refer to Figure 8.2)											
	3.1	Training and performance of indigenous dances		5	10	3	2	2	2	2	26	
	3.2	Handicraft management		5	10	3	2	2	2	2	26	
	3.3	Special events sponsorship			10	5	3	2	3	2	25	
	3.4	Village preservation			30	5	3	3	3	3	47	
	3.5	Cultural and heritage preservation			20	5	3	3	3	3	37	**161**
		Total		168	135	40	68	28	226	40	705	**705**
											Total (Local Communities) (RM thousand)	**705**

9 INTERPRETATION

9.1 INTRODUCTION

Providing appropriate information (be it verbal or non-verbal) improves personal decision making of visitors, promotes general welfare, and protects the resource where activities take place). It was noted that "one of the weakest links in tourism is that of imparting information" to visitors (Gunn, 1979: 145). Information is about communication, and different media are available for resource managers to utilise. Targeting the appropriate audience is important as at times resource managers tend to talk to those who agree with them or the parks' objectives, but not enough has been done to those who do not agree.

This chapter provides the tools needed to develop appropriate interpretative services in MBCA.

9.2 WHAT IS INTERPRETATION?

Traditionally, park managers have utilised the service of rangers and naturalists as intermediaries in facilitating responsible visitor behaviour. Providing quality services to visitors has its limitation due to the high number of visitors, shortage of manpower and budgetary limitations. Due to these restrictions, visitor interpretations can be utilised by resource managers as a means of promoting the goals of MBCA through informing and educating visitors, and assuring visitors conform to regulations (refer to **Box 9.1**). A good interpretative specialist has an inherent gift in evoking a feeling, conveying a message, and effecting change to visitors. It is believed that the detrimental impacts due to the large volume of visitors can be lessened if visitors are knowledgeable about natural resources and understand what types of activities are considered appropriate and inappropriate.

BOX 9.1: Benefits of Interpretation Services

Among others, it :

- Increases compliance with park regulations;
- Increases safety;
- Increases public support for policies and management practices;
- Decreases vandalism; and
- Decreases depreciative behaviour.

It has been noted that one of the weakest links in visitor management is that of imparting information to the visitor or audience. Here, it must be noted that interpretation and education programmes are capable of assisting park managers to achieve the objectives of park planning and management.

In general, interpretation is a technique that helps to reduce the negative recreational impacts by communicating with the users on the overall purpose of MBCA. It can enrich visitors' experience while motivating them to protect the

environment in a logical and sensible way. Therefore, interpretation must be able to provide the necessary information in alleviating the pressure of visitors in MBCA. It must function as to inform and direct visitors, in addition to the traditional nature knowledge and appreciation messages.

Here, interpretation is more than instruction or educational training. It passes on the meaning of something and develops a deeper understanding revealing a larger truth that lies behind any statement of fact or exhibits. There are three kinds of objectives on which interpretation focuses : **learning objectives** (providing basic topic information or understanding); **behavioural objectives** (preventing detrimental impact upon the area); and **emotional objectives** (getting the audiences to appreciate the value of natural resources). As a management tool it can broadly be categorised into three main objectives :

BOX 9.2: Notes on Education, Interpretation and Information

Basic understanding of the terms :

Education
...provision of programs and materials to assists informal and formal training (local community development, guide, staff and visitors).

Interpretation
...explanation of natural features and processes and its relationship between them (slides show, guided walks, display or exhibits).

Information
...publications with details or instructions to use the facilities, activities and regulations (maps, trail guides, signposts, brochures/leaflets, publications and checklists).

(Source: Watson, 1985)

- assisting visitors in developing a keener awareness, appreciation, and understanding of the area, thus enhancing visitor experience;
- accomplishing management goals, by either encouraging thoughtful use of the recreation resource on the part of the visitor or reducing negative impacts on the resource by guiding people away from fragile or overused areas into areas that can withstand heavier use; and
- promoting public understanding of the agency and its programme.

It must be noted that an interpretative programme is the entire interpretative effort, which includes the personnel, local communities, tour guides, facilities, and all interpretative activities of the MBCA. "Interpretation" differs from "information" because it does not only state facts but attempts to explain concepts, meanings, and the inter-relationship of natural phenomena (refer to **Box 9.2**). Interpretation conveys the meaning of something through exposition or explanation, (while) information is the knowledge derived from study, experience or instruction.

Interpretation programme should be continuous and should be carried out on a module basis using approaches and techniques which can best reach the maximum number of audiences. Most importantly, it should provoke interest among individual towards continuing the process on its own.

9.2.1 The Process

In developing interpretation services, there is the need to know the visitors or audiences. While the motivational needs (refer to **Table 9.1**) might varies between one visitor to another when visiting PAs, these visitor or audience is in or approaching a recreational mode of thinking - neither in a working mode nor in an educational mode. In this scenario, interpretation must be looked as a recreational activity, and the followings need to be taken into account (MacKinnon *et al.*, 1986):

- What is there to see and do;
- How to see what you want;
- What visitors are looking for;
- How to behave in the area;
- Why have a park at all;
- What is there to attract visitors to come back again; and
- How visitors can assist the park.

Once the above questions are answered, then there is the need to divide the development of interpretative media/technique into two main categories: attended and/or unattended services.

- *Attended services* - In this context, visitors comes into direct contact with the interpretative specialist through the following media: information duty, conducted activities, talks to groups or living interpretation and physical demonstrations. Personal services are considered the ideal interpretative media for reasons of their warmth and flexibility, but can be expensive and demanding on parks' personnel.
- *Unattended services* - Due to constraints in manpower, it is advisable for parks to emphasis in developing those media that have minimal staff requirements. It is important to state that chosen unattended services will always provide basic information to visitors. Such media includes written material, electronic touch screen or monitor, labels, publications, self-guided activities, self-guided trails, cycling tracks, exhibits (indoor & outdoor) and interpretative/visitor centre.

Information for park users should be made available at the most accessible and conspicuous locations. While visitors have an obligation to seek out information before and upon arrival in the park, it is the responsibility of MBCA to have information easily available.

Table 9.1: Expanded Levels of Visitor Needs

Levels of Need	How interpreters can meet visitor needs
Self-actualisation	Provide resources for independent exploration. Help visitors to develop interpretative materials from their own expenses. Assist visitors to develop their own campfire programmes
Aesthetic	Offer seminars for reading and discussion with experts in diverse fields related to visitor interests. Lead guided walks to places of special or unusual interests. Bring in outside specialists for talks and visits (e.g. scientists, managers).
Understanding	Provide access to reports, plans, budgets, etc. Provide means for visitors to ask question about policy, regulations, science, etc. Post questions and responses in convenient locations for all to see. Provide interpretative exercises, experiments, and other environmental education activities and tasks to allow visitors to perform specified tasks on their own time.
Knowledge	Provide access to data and diverse library resources. Provide times so interpreters can talk with visitors in an unstructured way. Arrange for visitors to see practical applications of principles, concepts, and ideas.
Esteem	Publicise a visitor's performance on bulletin boards, park newsletters, and campfire programme. Give visitors significant responsibilities on walks, at campfires, and slide shows.
Belonging	Call a visitor by name – ask for it and use it. Visit the campground and other park areas where people gather. Express your pleasure in working with visitors and with the individual.
Security	Encourage and permit continued study in areas of visitor interest and ability. Publish park policies and follow them consistently. Act consistently, avoid punishment and sarcasm.
Survival	Provide strong, consistent safety measures, making visitors aware of them. Have trained first-aid personnel and equipment in the area. Provide for health and sanitation.

There are many techniques for the provision of such information. Due to different capability, needs and expectations of visitors, it is necessary to utilise a variety of methods in presenting a programme. The *visitor characteristics* (age, education, profession, etc.) will help to establish the level and content of the interpretative programme relative to *visitor needs* (**Figure 9.1**).

A simple interpretative planning process is shown in **Figure 9.1**. It briefly details the decision-making process that best describe the criteria required in the planning of a successful interpretative programme.

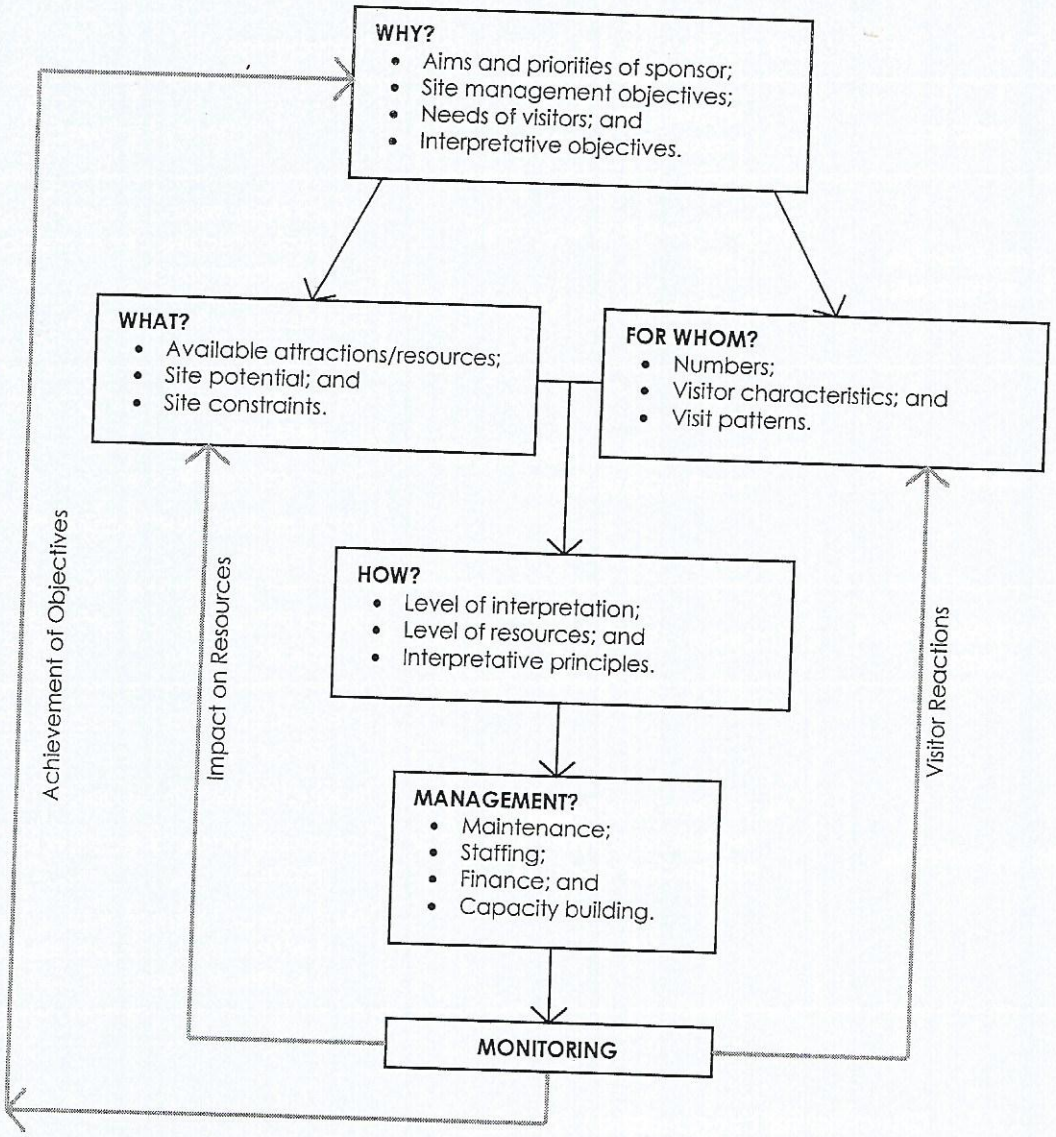


Figure 9.1: The Interpretative Planning Process

Although many potential audiences exist, in general only four emerged repeatedly (**Table 9.2**). These are due to the direct relationship between their actions and the long-term condition of MBCA; and their capacity to influence other people in diffusing environmental ideology.

Table 9.2: Typology of Audiences for Interpretation Programme

Audience	Primary mechanisms for Communication Opportunity	Sphere of Influence
Local People (communities)	Staged events or organised tours; Daily contacts with MBCA or field personnel	Direct daily impact on condition of protected resources and on adjacent lands; Significant political potential.
National Visitors	Outings or visits to MBCA (guided or self-guided trips)	Intermittent impact on protected resources; Direct political influence; Local and national economic impact.
Influential Groups & Citizens	Staged events or organised tours	Direct influence on policy and public opinion.
Foreign Visitors	Visits to MBCA (private or organised groups) (guided or self-guided trips)	Intermittent impact on protected resource; Indirect influence on policy; Local and national economic impact; Influence on international conservation NGOs in their country of origin.

9.2.2 Checklist for Interpretation Planning

An interpretation plan is meant to guide planners or resource managers in the long-term selection and development of the most appropriate method to deliver the interpretative theme or story. Factors that are likely to influence the choice of media are a good understanding of all available resources, potential audiences (local communities and visitors); the maintenance need of any selected media (if you can't maintain, don't built it!); and the capability of the interpretative personnel.

Guidelines in the development of interpretative facilities are well described by MacKinnon *et al.* (1986), Ham (1992), and Knudson *et al.* (1995). However, in choosing the best tool to do the interpretation job, one must bear in mind some fundamental questions that were clearly outlined by Sharpe (1976). It can be used as a checklist in planning future services. The list includes:

- Does the medium require skilled staff or an attendant to operate it?
- Does it require electricity (light, air-conditioning, dehumidifier, or pumps)?
- Could it easily be vandalised or stolen?
- What effect will the medium have on specific target groups or visitors?
- What effect will the target groups and visitors have on the medium?
- What effect will the medium have on the environment in which it is to be used?
- What will be the cost of design preparation, construction, and installation?
- At what type and volume of audience is it being primarily directed?
- Is the quality of the presentation satisfies the prescribed standards of the organisation?
- If high visibility is needed, will this medium provide it?
- Will it be accepted by (attractive to) the public, or will it appear too extravagant or intrusive?
- Will maintenance be a problem?
- What effect will weather or climate have on it?
- Will it hold up with continuous use?
- Can a replacement be made easily and at what cost?

Whatever is the final site selection, the final version of an exhibit design, the final photo selection for a slide show, choices have to be made according to the message, the media, the visitor/audience and the financial and human resources available (refer to **Box 9.3**).

BOX 9.3: When preparing interpretative materials, please bear in mind...

Too often, interpretation...

...reflects the needs of the staff rather than the needs of the park visitors...and park themes sometime revolve around the interpreter's expertise and interests rather than on management objectives or visitor expectations.

(*Source*: Watson, 1985: 80)

In its simple form, interpretation should...

...awaken people's curiosity. It is enough to open minds; do not overload them. Put there just a spark. If there is some good flammable stuff, it will catch fire.

(*Source*: Anatole France cited in Knudson *et al.*, 1995: xix)

Managers or interpretation designers need to remember that the visitors or audiences are out for recreation and need restful, intellectual visions; not rules and manuals, in addition to dull and dry facts.

In the planning of interpretation, if possible, avoid using sophisticated or exotic mechanical gadgets unless it can truly complement the human factors. At times, it can never truly replace direct contact between the interpreters or medium with the audience. As mentioned earlier, there is the need to maintain such gadgets, and it must be continuously service. The very simple fact is that such gadgets can be good when new or when it is working, but it can be a source of embarrassment or set-back when they are allowed to be inoperative even for a short period.

9.2.3 Interpretation Design

To achieve a sustainable MBCA or resource-related operation :

- Visitor experiences should be based on intimate and sensory involvement with actual natural and cultural resources. The local culture should be included. The experiences should be environmentally and culturally compatible and should encourage the protection of those resources;
- Educational opportunities should include interpretation of the systems that sustain the development as well as programs about natural and cultural resource values of the setting;
- Site and facility design should contribute to the understanding and interpretation of the local natural and cultural environments; and
- Interpretation should make the values of sustainability apparent to visitors in all daily aspects of operation, including services, retail operations, maintenance, utilities, and waste handling. A good example should be set in all facets of operation.

Visitor experiences must be based on actual knowledge of resources that are environmentally sustainable and influence human values, thus protecting the overall environment. **Table 9.3** provides a list of general goals and specific examples to facilitate the integration of interpretation into sustainable development.

Table 9.3: Interpretation and Sustainable Development

Interpretative Goals	Examples
a. Visitor Experiences	
Sustainable design must...	*Sustainable design would...*
• include a professional understanding of the natural and cultural resources involved and clearly state that people must be subordinate to (or in harmony with) nature.	• ensure that the site plan, design, and construction preserve and emphasise key elements of the natural and cultural environments.
• give the development a special sense of place based on the resources of the site.	• feature architectural materials that are native to the site or region and that are renewable and environmentally sensitive. • encourage opportunities for sensing, experiencing, and/or understanding resources in the architecture and site design.
• provide education about the natural and cultural environments and the support systems that sustain the development while bringing visitors and resources together whenever possible.	• place interpretive exhibits within the development, allowing visitors to be aware of immediate resource protection concerns associated with the environment. • provide information in visitor facilities about the resource, using printed or electronic media as appropriate. • provide access to the support systems of the development through cutaway walls or other methods.
• allow visitors to experience nature in an intimate sensory fashion, providing opportunities for private moments in natural settings.	• limit outdoor night-lighting to low wattage, directional lighting, with consideration of photovoltaic power and control. • provide passive, quiet areas where visitors can reflect on the natural scene. • assist interpretive programming to set the stage for private moments in natural settings.
• incorporate the living culture as a significant part of the visitor experience and encourage opportunities for visitors and local residents to interact and share their values and experiences	• adaptively reuse existing buildings when they reflect part of the story of the site. • incorporate architectural traditions, names, and images into facility design.

b. Facility Planning/Design/Construction	
The values of sustainable development must ...	*The values of sustainable development are shown by...*
• include a professional understanding of the natural and cultural resources involved and clearly state that people must be subordinate to (or in harmony with) nature.	• ensure that the site plan, design, and construction preserve and emphasise key elements of the natural and cultural environments.
• give the development a special sense of place based on the resources of the site.	• feature architectural materials that are native to the site or region and that are renewable and environmentally sensitive. • encourage opportunities for sensing, experiencing, and/or understanding resources in the architecture and site design.
• provide education about the natural and cultural environments and the support systems that sustain the development while bringing visitors and resources together whenever possible.	• place interpretive exhibits within the development, allowing visitors to be aware of immediate resource protection concerns associated with the environment. • provide information in visitor facilities about the resource, using printed or electronic media as appropriate. • provide access to the support systems of the development through cutaway walls or other methods.
• allow visitors to experience nature in an intimate sensory fashion, providing opportunities for private moments in natural settings.	• limit outdoor night-lighting to low wattage, directional lighting, with consideration of photovoltaic power and control. • provide passive, quiet areas where visitors can reflect on the natural scene. • assist interpretive programming to set the stage for private moments in natural settings.
• incorporate the living culture as a significant part of the visitor experience and encourage opportunities for visitors and local residents to interact and share their values and experiences.	• adaptively reuse existing buildings when they reflect part of the story of the site. • incorporate architectural traditions, names, and images into facility design.

c. Operations and Maintenance	
The values of sustainable development must be...	*The values of sustainable development are shown by...*
• communicated by the manager who serves as the chief interpreter of a sustainable development.	• providing all staff with regular training regarding local natural and cultural features and resources. • organising work/study programs that emphasise resources and sustainable design techniques. • organising volunteer activities that allow visitors to work on restoration or enhancement of the environment after appropriate training. • developing volunteer programs that allow visitors to operate site support systems.
• understood and appreciated by the entire staff, who should demonstrate understanding and respect for the local environment and share their knowledge with visitors.	• providing tours that present the sustainability goals of a development as shown in the operation and maintenance functions such as utility and support systems. • providing visitors the opportunity to understand the relationships of local water, wastewater, solid waste, and electrical systems to local, regional and global environments.
• shared with those who live in the surrounding areas; the local culture should have a significant role to play in the operation of the facility.	• including representatives of the local culture in significant staff positions. • organising cultural activities and demonstrations that allow local residents to share their values and skills with visitors. • organising environmental education programs that include members of the local community and schools.
• visible in all daily aspects of operation, including energy use, food handling, waste handling, maintenance activities, retail operations, and visitor services.	• providing a central staffed location for resource and activity information. • serving meals that feature local foods and products and by cultivating local foods within the development. • recycling all possible waste. • selling appropriate informational materials and quality items crafted by local people.

9.3 THEMES

Several different themes are selected to highlight the strengths of the trails (**Table 9.4**). These themes are meant as indications and should be revised from time to time, as more information are gathered. Adequate rest areas are to be erected at appropriate spots to indicate the strengths of each trails (refer to **Table 5.2** and **Table 5.4** for guidelines).

Table 9.4: Proposed Themes for Wilderness Trails

Theme	Concept
a. Trail 1 (Agathis Camp - Camel trophy Camp)	
Heath Forest	Illustrates the richness of the heath (*kerangas*) forest, highlighting the numerous species of orchids.
	Initial stage rather demanding, climbing from 280 m asl to 960 m asl (2.4 km). Total distance = 7.0 km
b. Trail 2 (Camel Trophy Camp - Lobah Camp)	
Heath Forest	To highlight the heath forest, especially its numerous species of pitcher plants (*Nepenthes sp.*) and the migration route of the wild boar.
	Initially flat but undulating through heath forest. (8.0 km)
c. Trail 3 (Lobah Camp - Seraya Camp)	
Forest Formations	Illustrates the different forest formations, including large trees, herbaceous plants, Rafflesia, geological formation, waterfalls.
	Interesting trail (8.0 km). Downhill most of the way, passing through the abandoned Bambangan Camp. River crossing (Sg. Ginseng) requiring a bridge to facilitate crossing.
d. Trail 4 (Seraya Camp - Belian Camp)	
River Formations	To highlight the riverine formations, including its vegetation.
	Total journey of 7.0 km passing through Repeater Hill.
e. Trail 5 (Agathis Camp - Ginseng Camp)	
Medicinal Plants	Enlighten visitors on the abundance of medicinal plants in the area.
	xxxx
f. Trail 6 (Ridge Trail)	
Landscape	Highlights the basin and its landscape, offering different vantage points for viewing the basin.
	xxxx

Classification of Trails

	Easy/senang	Flat, easy paths that can be walked safely without paying particular attention to the ground, allowing the forest to be scanned for wildlife.
	Normal/biasa	Up-and-down paths that are steep enough to cause forced breathing and heavy sweating, especially if burdened, allowing little attention to be paid to the surroundings.
	Difficult/Susah	Steep to very steep paths that are hard going and demand careful foot and hand placement and frequent rest pauses, especially if burdened.
	Dangerous/Bahaya	Very steep paths that are frankly dangerous due to a lack of secure hand and foot holds and an obvious potential for falls and serious injury.

9.4 TECHNIQUES

Interpretative media or techniques are generally divided into two main categories; personal (attended) services and non-personal (unattended) services. The following sub-sections provide some of the techniques.

9.4.1 Attended Services

In this context, visitor comes into direct contact with the interpretative specialist through information duty, conducted activities, talks to groups or living interpretation and physical demonstrations. Personal services are considered the ideal interpretative media for reasons of their warmth and flexibility, but can be substantially expensive and demanding on the staff.

a. Information Duty

In accordance to situation on site, it can take many forms, ranging from giving orientation on the location of facilities (e.g. washroom, canteen, office, etc.) and attractions (e.g. visitor centre, educational trails, etc.) to a complete presentation about the available services in MBCA.

b. Conducted Activities

This includes educational courses, walks or simply simple activities such as astronomy, etc. In this instance, visitors join the naturalist guide or other guides for a guided walk. From a starting or meeting point, the visitors' moves along pre-selected route to one or more points of interest that will contribute to telling the story based upon selected themes.

The message or programme can also be exported outside MBCA with information or educational talks which would create awareness among school children or members of the public through mobile exhibits.

c. Talks to Groups

These are presentations (inside or outside buildings) made at announced times and places, such as seminars, conventions, newspaper, radio/TV programme, etc. The amphitheatre or auditorium presentations are much more casual and can be presented on an *ad hoc* basis or short notices.

d. Living Interpretation/Physical demonstrations

In living interpretation, the interpreter introduces the visitor to his/her areas of specialty. The interpreter may be a researcher conducting fieldwork or botanist collecting plant specimens or conducting enhancement process at the degraded forest.

On the other hand, visitors can commit and contribute as active volunteers or as paying field assistants. Through such programmes, it was found that "personal conviction was more effective than law enforcement in preventing environmental destruction" (The Star, July 15 1997). It was mentioned that although 90 per cent of

Malaysians were aware of the need to preserve our environment, only 25 per cent were actively involved in doing their bit for the environment.

e. Effective Communication with Visitors

Communicating effectively with the identified target groups and visitors is vital to sound resource management.

Visitors expect every employee (including those in other services) working in MBCA to be able to provide answers to their questions. **It is important that all employees are instructed on the methods of handling visitors**. This may range from just directing visitors to a proper source for answers to providing them with in-depth information. This will contribute to enhance MBCA image.

Personal services could be provided through guides, volunteers, supporting groups, NGOs, etc. However, in order to maintain uniformity and level of quality in their presentation, care must be given to orientate volunteer or staff with an understanding on MBCA objectives.

9.4.2 Unattended Services

Due to manpower constraints in MBCA, it is advisable that, in the early stages of development of the interpretation programme, emphasis be given to those media that have minimal staff requirements. Over a period of time, MBCA will be able to develop personal interpretation skills among staff and volunteer groups who will efficiently deliver environmental awareness messages in the area.

a. Written Material

This includes signage, labels, leaflets/brochures and other printed materials meant to provide basic information about MBCA (refer to **Photo 9.1**). This may be read for clarification and their message is silent. The interpretative **signage** is a quick method of presenting the story. The message must be attractive, simple and easy to read. The sign must be made of durable materials since it is usually placed outdoors. The cost of signs is relatively low.

Photo 9.1: Example of Leaflets

As for **leaflets**, it should tantalise rather than fulfils. It is for wide distribution in tourist offices and should lure visitors to the area. It gives information on what can be seen and done, how to get there and any special preparation (e.g. bookings, permits, meals, accommodation, etc.). The leaflet should outline the conditions and facilities available in and around the area, including current cost of facilities and other user fees. Brochures (available in different languages) provide

visitors inside MBCA with basic information to help them enjoy and make the most of their visit. This usually includes brief description of MBCA, main attractions, a map, list of regulations and information on its natural history. It is useful if the folded brochure fits comfortably into a shirt pocket; then it is more likely to be kept and not discarded as litter.

b. Touch Screen or Monitor

A new technology and considered to be rather expensive. However, the cost mainly comes from the hardware. It provides several advantages where the visual contents can be changed at any time through a central system. Nevertheless, with high humidity and dependent upon the types of users, maintenance can be high.

c. Labels

These are usually used in conjunction with another medium such as exhibits. Generally, the principles that apply to signs also apply to labels.

d. Publications

Interpretative publications include everything from self-guided trail brochures and single-page keys and checklists to extensive books on flora and fauna, journals, and others (examples as per **Photo 9.2**). Publication may be used as a source of information and interpretation prior to visit as well as during the visit itself. After the visit, the publication becomes a valuable reference. The detailed presentation and the opportunity for home use are the publication's main advantage over other media.

Photo 9.2: Examples of Publications

e. Self-guided Activities

These are intended to put visitors, usually in family-sized groups, in direct contact with the resource at the visitors' convenience. The visitors are on their own, and the interpretative messages are provided by a variety of unattended media as mentioned below.

- **Interpretative Trails**

  Interpretative trails can broadly be sub-divided into **self-guided and guided**. The **self-guided trails** are usually walking trails which permit a large number of visitors in smaller groups to come in direct contact with the authorities in its natural setting without utilising the service of guides(refer to **Photo 9.3**). It is advisable at all time, groups or individuals can move at any time and at their own pace. It is essential that it do not require continuous surveillance. Interpretation is usually handled by one of the following options: brochures and markers, or the sign in place (boards or touch screens).

  As for **guided trails**, this is similar to self-guided trails, but normally longer (between 1 to 2 hours walk) and would require the service of guides (refer to **Section 9.6.1** for more information).

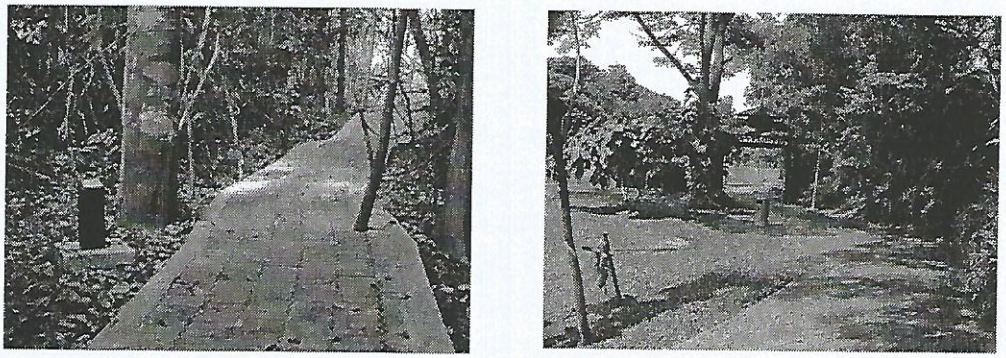


Photo 9.3: Examples of Self-guided Trails (heavy usage)

- **Exhibits (indoor)**

  Exhibits are usually an indoor interpretative medium (refer to **Photo 9.4**). The building in which they are housed and the exhibit area should both be well lit, attractive and uncluttered. The building should be a place where people want to visit (e.g. visitor centre or interpretation centre).

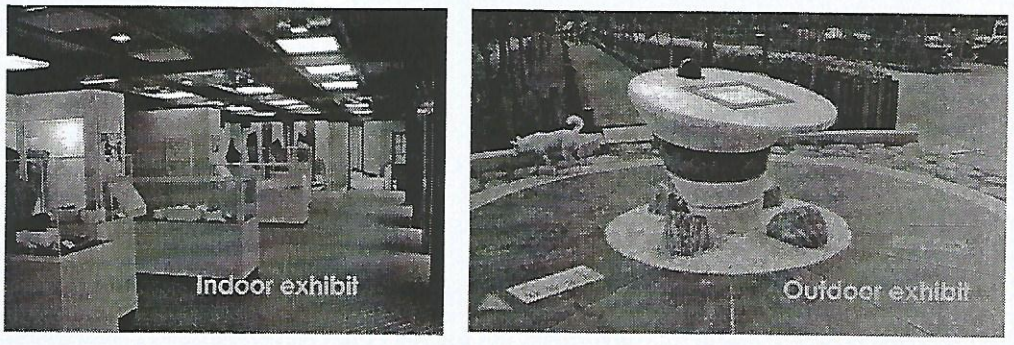


Photo 9.4: Examples of Exhibits

- **Exhibits (outdoor)**
  Often referred as wayside an exhibit, the outdoor exhibit is used to stimulate interest in a feature "near the point of interest" (see **Photo 9.4**). This can be located at high points, near to places of interest, etc.

f. Interpretation Centre

The centre should be viewed as a major tool to tell visitors about MBCA. As a rule, it is a focal point in any given type of PAs. It is the place where the entire story of the area is presented. It should introduce, clarify and direct visitor to the actual resource outside, unlike a museum that functions as a destination in itself.

However, it will be a great mistake in attempting to take the resources into the interpretation centre and cope with the technical problems of feeding organisms and providing adequate living conditions. In planning for indoor closed living systems, one must question its efficiency to deliver the messages to visitors (e.g. what better experience can the centre provide to birders than that of bird-watching around the centre?).

The interpretation centre for the area is a major installation. It serves both the visitors and staff, and utilises most of the media listed earlier. Orientation of the visitor is one of its prime functions. Since it is the focal point for visitor activities, it should outline the overall goals and objectives of MBCA.

It should display live slide presentations, posters, trails and on-site exhibits. They all share something in common : they participate in telling the area to target groups or visitors. The storylines should be referred as the assemblage of a substantial amount of technical, scientific and cultural information that needs to be structured in such a way as to trigger interest and awareness from visitors.

9.5 PROGRAMMES

The most direct way for visitors to learn about the destination is for them to see it for themselves. It is crucial that they get a good impression, and it must be remembered that educating the visitors is not an end itself for MBCA, but a means to an end.

The following types of information will generally need to be included in the design of programmes for visitors.

- **What is there to see and do?**
  Visitors will need this information to plan their visit and make best use of their time in relation to their personal interests.

- **How to see what you want?**
  Maps (various scales and formats) of the area and points of interest, with information on how to get there, distances, time and expenses.

- **What visitors are looking for?**
  Basic information should be presented simply and briefly, but in an interesting manner so that the visitor gains a greater understanding of what he/she experiences. This is where simple information is translated into interpretation.

- **How to behave in the area?**
  As well as explaining the regulations of what is and is not allowed in the area, information should also be given on how to behave so as not to disturb current management operations, other visitors, local cultures and the natural features.

- **Why have MBCA at all?**
  Try answering the basic question. What is the purpose of preserving the forests and why in MBCA?

- **What is there to attract visitors to come back again?**
  Provide suggestions for trips of differing duration, centred on different locations, trip with different themes. Developments of long term strategies in attracting repeat visitation among locals need to be identified.

- **How visitors can help?**
  Suggest ways in which impressed or interested visitors can help by becoming supporters.

9.6 TRAILS

Currently, there are several long distance trails available in MBCA. While the trails available are considered sufficient, more need to be done to upgrade its facilities and information. In addition, the creation of additional trails must be thoroughly considered. In planning trails development, the following should be borne in mind :

- Review the technical aspects of trail construction with experts (i.e. alignment, excavations, constructions, boardwalks, materials);
- Be sure the trail serves the purpose for which it was meant;
- Locate trails in such a way that the features and scenery can be enjoyed, avoiding serious disturbance to the natural setting. Location, alignment and grade of difficulty should be selected considering both technical (soil type, bedrock, excavation, slope, drainage, etc.) and aesthetic criteria (scenic beauty, features of interest, etc.);
- When "switchbacks" are required, use, where possible the configuration of the terrain. Avoid too narrow angles and, to prevent short-cutting and multiple trailing, try to make loops invisible;
- Assess expected visitor impact, list fragile features, and mark stretches where slope stabilisation, drainage or other erosion control measures are required;
- Work out a schedule of patrolling and litter collection and disposal; and
- Design an interpretative programme using themes, locations, designs, and techniques appropriate to the trail.

9.6.1 Guided Trails

Developing a successful interpretative trail depends on several factors. The most obvious criterion for judging a trail is the quality of its historical, cultural, or natural elements. But, before designing such trails, always ask: who is the intended users?

An interpretative trail in a campground should not be expected to function the same way as one outside a visitor centre. In order to design such trails, two things to bear in mind:

i. The set of features to be interpreted, i.e. specimen trees, geological features,
ii. The physical layout: the trail needs to start gaining elevation, cross the stream, and rejoin the loop.

a. Educational Trail

Restricted to educational groups and fully escorted by naturalist guides or resident naturalist. It should be user-friendly (and can be used for night walks) and complete with interpretive signs located at strategic locations.

Educational trails need not be long (between 0.5 to 2.0 km) with a walking time of 30 to 90 minutes and is constructed as a one-way loop beginning and ending in the same place (if possible). It should be about 1.0 - 1.5 metres wide, sealed and drained or using interlocking blocks (refer to **Table 5.2**). The use of boardwalks or bridges at certain spots is greatly encouraged in order to handle large number of educational groups.

In using educational trails for guided night walks, it must be accompanied by naturalists and arranged through reservations.

b. Nature Trail

Considered being an extension of the educational trails, but covering longer distance with specific themes and objectives. Such trails should be *informative* (with signs and labels explaining its features); *inviting* (must be clear and well marked) and *well maintained*.

It is open to all visitors; between 1.0 - 1.5 metres wide and surfaced with either quarry dusts or gravels (refer to **Figure 9.2**). Information signs, labels, distance markers and exit stations located at strategic locations are to be considered.

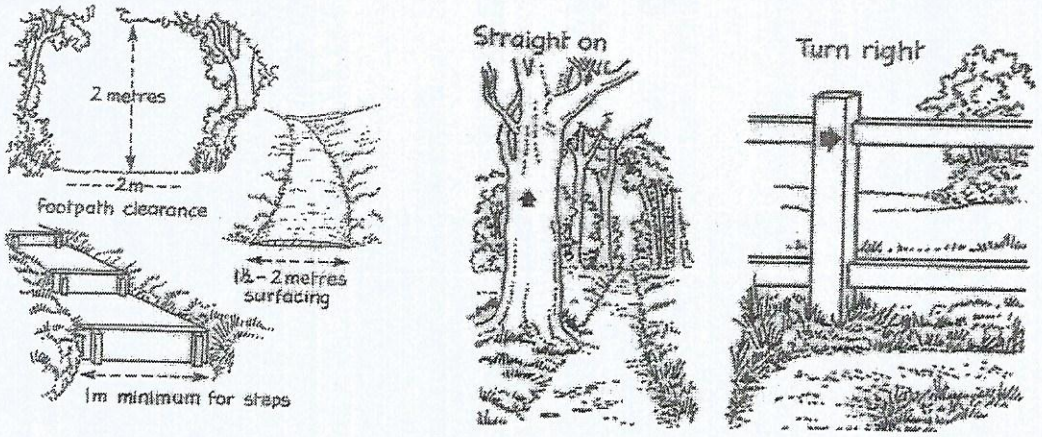


Figure 9.2: Guidelines for Nature Trails

A map must be made available (either on sign or brochure), checklist of things to see along the trail. In using brochure, it need not be expensive but should include sketches and diagrams and be visually attractive. Decide between printed labels along the trail or numbered labels with reference to printed brochures for interpretation of features. The use of brochure or booklet and numbered posts along the trail is desirable as compare to sign boards as it tends to impinge on the natural surroundings and require greater maintenance. In addition, a brochure can be taken home, shown to other people and thus creating interests.

9.6.2 Wilderness Trails

The availability of wilderness trails in MBCA is considered sufficient for the expected numbers of visitors. These trails (as discussed in **Table 9.4** and **Section 5.2.2**) should continuously be monitored, especially on its impact due to visitations.

9.7 BUDGETS

For the purpose of providing interpretation for visitors to MBCA, an amount of RM0.745 million is to be allocated to equip the facilities, trails, exhibits and other materials for the unattended services (refer to **Table 9.5**).

Table 9.5: Budget for Interpretation (RM thousand)

Description			Timeframe (2005 – 2012)								Amount	Total Amount
			05	06	07	08	09	10	11	12		
1.0	**Facilities**											
	1.1	Visitor Centre (Security Gate)		50	3	2	2	2	20	3	82	
	1.2	Interpretation Centre (Maliau Basin Studies Centre)		40	3	2	2	2	20	3	72	154
2.0	**Trails**											
	2.1	Wilderness Trails		20		3		3		3	29	
	2.2	Self Guided Trails		20	2	2	2	2	10	2	40	69
3.0	**Exhibits**											
	3.1	Indoor (refer to 1.0 above)										
	3.2	Outdoor		30	5	3	3	3	10	2	56	56
4.0	**Unattended Services**											
	4.1	Written materials		10	5	3	3	3	10	3	37	
	4.2	Touch screen/monitor				50	3	3	10	3	69	
	4.3	Labels		5	2	2	2	2	5	2	20	
	4.4	Publications		10	50	50	50	50	80	50	340	466
Total				185	70	117	67	70	165	71		745
											Total (RM thousand)	**745**

10 INFRASTRUCTURE AND PUBLIC SERVICES

10.1 INTRODUCTION

This chapter presents several suggestions that would provide the mechanisms towards the principle of sustainable tourism development. Among others, it discusses matters related to facilities, power supply, waste management, water treatment and its storage.

10.2 INFRASTRUCTURES DEVELOPMENT

In the development of the site as a nature-based destination, certain factors needed to be taken into consideration. These factors include the reasons for developing the destination, functions of the attractions, the future sustainable management of the attractions, and finally the local community. First, the reasons for developing the destination are for the economic sustainability of the local community and the protection of the endangered species to create a better international image for MBCA. Second, the functions of the attractions include the conservation of the flora and fauna in the area and entertaining visitors whilst creating a profit. Third, the sustainable management of the attractions is an ongoing practice that needs constant contemplation, and therefore should be strategically entrenched into all management plans. Fourth, the needs of the host community's cultural and access priorities for the area have to be respected.

In consideration of the first and second factors, international image and economic prosperity, the prospective visitors would be internationally renowned and affluent. This is in contemplation that to minimise impacts, it would be ideal to minimise visitors whilst maximising economic return, and therefore create a sustainable area. The management of the area needs to take a long-term strategic role in the providing of all four factors. Sustainable management practices should be able to integrate the objectives of MBCA. The integration of the community in planning and managing the attractions is needed for the success of the venture in relation to all the factors. Community support is vital for the success of any tourism undertaking, particularly in this situation, as one of the objectives is the economic sustainability of the community. Also of concern to the local community would be the development of the site and the cultural, economic and environmental impacts this would create. The infrastructure used on the site would have to accommodate the needs of the visitors, whilst complementing the surrounding environment. Facilities deemed necessary in the development of the site as a nature-based destination, include accommodation and eatery facilities, access, education and information facilities, viewing areas, picnic areas, toilet facilities, and recreational facilities.

In providing adequate facilities in MBCA, planning must meet certain criteria: to satisfy market and investment needs, to create an attractive image, to harmonise with the

environment and to meet social and economic objectives. The following principles apply (refer to **Table 10.1**).

Table 10.1: Principles of Developing Facilities

Objectives	Ways	Means
To meet individual requirements	Involves careful zoning and interfacing as visitors often seek paradoxically	• tranquillity and rest - but also facilities for entertainment and recreation; • anonymity - but also the opportunity to meet other people and participate in the social activities of the changing community; • contact with nature, with locals and their culture - but with standards of home comfort; and • seclusion and privacy - but with benefits of security and close proximity to a variety of recreation facilities.
To provide a different experience	Most visitors are city or urban dwellers, for whom such visits essentially mean an escape from their existing conditions, high densities, pollution and organised routines. To provide a refreshing experience of contrasts, facilities must be planned as "anti-towns", offering such features as...	• quietness, change of pace and opportunities for relaxation; • contact with nature, sun, mountain; • a human scale; • a change in activity, provided by alternative activities; • contacts with other people outside the circles of work and home; and • discovery of other cultures, and other ways of life.
To create an attractive image	As original as possible to give the place a personality, an easily remembered character. This may be achieved in a number of ways...	• by making the best use of the particular resources and peculiarities of the site, its surrounding and climate, using local materials and techniques where possible; • by adapting the development plan and the scale and design of buildings to reflect the character of the main activities; and • by providing opportunities for contact with local community, their crafts and culture.

In addition, guidelines for environmentally and culturally sensitive design and operation has been described in Section 7.5 (refer to **Table 7.7**).

10.2.1 Main Facilities

The long-term objective of sustainable design is to minimise resource degradation and consumption on a global scale. Thus the primary objective of sustainable building design is to "lead through example" to heighten environmental awareness. Sustainable building design must seek to :

- use the building (or non-building) as an educational tool to demonstrate the importance of the environment in sustaining human life;
- reconnect humans with their environment for the spiritual, emotional, and therapeutic benefits that nature provides;
- promote new human values and lifestyles to achieve a more harmonious relationship with local, regional, and global resources and environments;

- increase public awareness about appropriate technologies and the cradle-to-grave energy and waste implications of various building and consumer materials;
- nurture living cultures to perpetuate indigenous responsiveness to, and harmony with, local environmental factors; and
- relay cultural and historical understandings of the site with local, regional, and global relationships.

Table 10.2 provides a brief checklist for sustainable building design that can be adopted in MBCA. Other than the general factor, the need to consider the natural and human factors needs to be taken into account.

Table 10.2: Checklist for Sustainable Building Design

a. General	
The design must...	• be subordinate to the ecosystem and cultural context o respect the natural and cultural resources of the site and absolutely minimise the impacts of any development • reinforce/exemplify appropriate environmental responsiveness o educate visitors/users about the resource and appropriate built responses to that environment o interpret how development works within natural systems to effect resource protection and human comfort and foster less consumptive lifestyles o use the resource as the primary experience of the site and as the primary design determinant • enhance appreciation of natural environment and encourage/establish rules of conduct • create a "rite of passage" o develop an entrance into special natural or cultural environment that emulates the respectful practice, e.g. removing shoes before entering Malay home • use the simplest technology appropriate to the functional need, and incorporate passive energy-conserving strategies responsive to the local climate • use renewable indigenous building materials to the greatest extent possible • avoid use of energy intensive, environmentally damaging, waste producing, and/or hazardous materials o use cradle-to-grave analysis in decision making for materials and construction techniques • strive for "smaller is better" . . . optimising use and flexibility of spaces so overall building size and the resources necessary for construction and operation are minimised • consider "constructability" . . . striving for minimal environmental disruption, resource consumption, and material waste, and identifying opportunities for reuse/recycling of construction debris • provide equal access to the full spectrum of people with physical and sensory impairments while minimising impacts on natural and cultural resources.
Also, the design should	• consider phasing the development to allow for monitoring of resource impacts and adjustments in subsequent phases • allow for future expansion and/or adaptive uses with a minimum of demolition and waste o materials and components should be chosen that can be easily reused or recycled • make it easy for the occupants/operators to recycle waste

b. Natural Factors

By definition, sustainable design seeks harmony with its environment. To properly balance human needs with environmental opportunities and liabilities requires detailed analysis of the specific site. How facilities relate to their context should be obvious so as to provide environmental education for its users. Although the following information is very general, it does serve as a checklist of basic considerations to address once specific site data is obtained.

Climate

- apply natural conditioning techniques to effect appropriate comfort levels for human activities . . . do not isolate human needs from the environment
- avoid overdependence on mechanical systems to alter the climate (such dependency signifies inappropriate design, disassociation from the environment, and non-sustainable use of resources)
- Analyse whether the climate is comfortable, too cool, or too hot for the anticipated activities, and then which of the primary climatic components of temperature, sun, wind, and moisture make the comfort level better (asset) or worse (liability).

Temperature

- temperature is a liability in climates where it is consistently too hot or too cold
- areas that are very dry or at high elevation typically have the asset of large temperature swings from daytime heating to night time cooling, which can be flattened through heavy/massive construction to yield relatively constant indoor temperatures
- when climate is predominantly too hot for comfort:
  - minimise solid enclosure and thermal mass
  - maximise roof ventilation
  - use elongated or fractured floor plans to minimise internal heat gain and maximise exposure for ventilation
  - separate rooms and functions with covered breezeways to maximise wall shading and induce ventilation
  - isolate heat-generating functions such as kitchens and laundries from living areas
  - provide shaded outdoor living areas such as decks
  - capitalise on cool night time temperatures, breezes, or ground temperatures
- when climate is predominantly cool for comfort
  - consolidate functions into most compact configuration
  - insulate thoroughly to minimise heat loss
  - minimise air infiltration with barrier sheeting, weather stripping, sealants, and airlock entries
  - minimise openings not oriented toward sun exposure

Sun

- sun can be a significant liability in hot climates, but is rarely a liability in cold climates
- sun can be an asset in cool and cold climates to provide passive heating
- design must reflect seasonal variations in solar intensity, incidence angle, cloud cover, and storm influences
- when solar gain causes conditions too hot for comfort
  - use overhangs to shade walls and openings
  - use site features and vegetation to provide shading to walls with eastern and western exposure
  - use shading devices such as louvers, covered porches, and trellises with natural vines to block sun without blocking out breezes and natural light
  - orient broad building surfaces away from the hot late-day western sun (only northern and southern exposures are easily shaded)
  - use lighter-coloured wall and roofing material to reflect solar radiation (be sensitive to resulting glare and impact on natural/cultural setting)
  - use shutters and screens, avoiding glass and exposures to direct solar gain
- when solar gain is too be used to offset conditions that are too cool for comfort
  - maximise building exposure and openings facing south
    - increase thermal mass and envelope insulation
    - use darker-coloured building exteriors to absorb solar radiation and promote heat gain

	Wind	• wind is a liability in cold climates because it strips heat away quicker than normal; wind can also be a liability to comfort in hot dry climates when it causes the human body to dehydrate and then overheat • wind can be an asset in hot, humid climates to provide natural ventilation o use natural ventilation wherever feasible; limit air-conditioning to areas requiring special humidity or temperature control such as artefact storage and computer rooms o maximise/minimise exposure to wind through plan orientation and configuration, number and position of wall and roof openings, and relationship to grade and vegetation o use wind scoops, or wind turbines to induce ventilation on sites with limited wind
	Moisture	• moisture can be a liability if it comes in the form of humidity, causing such stickiness that one cannot evaporatively cool (cooling by perspiring) o strategies to reduce the discomfort of high humidity include maximising ventilation, inducing air flow around facilities, and venting or moving moisture-producing functions such as kitchens and shower rooms to outside areas • nature can be an asset by evaporating in hot, dry climates to cool and humidify the air (a natural air-conditioning) o techniques for evaporative cooling include placing facilities where breezes will pass over water features before reaching the facility, and providing fountains, pools, and plants
Vegetation		• locate and size facilities to avoid cutting mature vegetation and to minimise disruption to, or disassociation with, other natural features • use natural vegetation and adjustments in building plan to diminish the visual impact of facilities and to minimise imposition on environmental context • in warmer climates, strengthen interplay of facilities with their site environment through minimising solid walls, creating outdoor activity spaces, etc.
Topography		• consider building/land interface to minimise disturbance to site character, skyline, vegetation, hydrology, and soils • consolidate functions or segment facilities to reduce footprint of individual structures to allow sensitive placement within existing landforms • use landforms and the sensitive arrangement of buildings to o help diminish the visual impact of facilities o enhance visual quality by creating a rhythm of open spaces and framed views o orient visitors to building entrances o accentuate key landmarks, vistas, and facilities
Water Bodies		• capture views and consider advantages/disadvantages of offwater breezes • safeguard water from pollutants from the development itself and its users • minimise visual impact of development on waterfront (also consider views from water back to shoreline) o use building setbacks/buffer zones o consider building orientation and materials o avoid light pollution
Hydrology		• locate and design facilities to minimise erosion and impacts on natural hydrological systems • safeguard hydrological system from contamination by development/activities • allow precipitation to naturally recharge groundwater, wherever possible
Wildlife		• respect importance of biodiversity and the humble role of humans in design • avoid disruption of wildlife travel or nesting patterns by sensitive siting of development and by limits set on construction activity and facility operation. • allow opportunities for users to be aware of indigenous wildlife (observe, but not disturb)
Pests		• design facilities to minimise intrusion by noxious insects, reptiles, and rodents • ensure that facility operators use natural means for pest control

c. Human Factors

Cultural Resources

Archaeological resources

- use preservation and interpretation of archaeological features to provide insight to previous cultural responses to the environment, their successes as well as failures

Vernacular architecture

- analyse local historic building styles, systems, and materials usually for time-tested approaches in harmony with natural systems
- use local building material, craftsmen, and techniques to the greatest extent practicable in the development of new facilities

Historic resources

- reuse historic buildings whenever possible to assist in their preservation, contribute to the special quality of the place, and extend the payback of their embodied energy and materials

Anthropology/ethnic background/religion/sociology

- understand the local culture and their needs to avoid introduction of socially unacceptable or morally offensive practices
- consult with local indigenous population for design input as well as to foster their sense of ownership and acceptance
- include local construction techniques, materials, and cultural considerations (that are environmentally sound) in the development of new facilities

Arts and crafts

- incorporate local expressions of art, handiwork, detailing, and, when appropriate, technology into new facility design and interior design
- provide opportunities and space for demonstration of local crafts and performing arts

Sensory Experience

Visual

- provide visitors with ready access to educational materials to enhance their understanding and appreciation of the local environment and threats to it
- incorporate views of natural and cultural resources into even routine activities to provide opportunities for contemplation, relaxation, and appreciation
- use design principles of scale, rhythm, proportion, balance, and composition to enhance the complementary integration of facilities into environmental context
- provide visual surprises within design of facilities to stimulate the educational experience
- limit height of development to below top of tree canopy to preserve visual quality of natural and cultural landscape
- use muted colours to blend facilities with natural context, unless contradictory to other environmental considerations (reflection/absorption) or cultural values (customs/taboos)

Sounds

- Locate service and maintenance functions away from public areas
- space lodging units and interpretative stops so that natural, not human, sounds dominate
- use vegetation to create sound baffle between public and private activities
- orient openings toward natural sounds such the babbling of streams, and rustling of leaves by the wind
- restrict the use or audio level of unnatural sounds such as radios and televisions

Touch

- allow visitors to touch and be in touch with the natural and cultural resources of the site
- vary walking surfaces to identify or give different quality to different spaces
- use contrasting textures to direct attention to interpretive opportunities

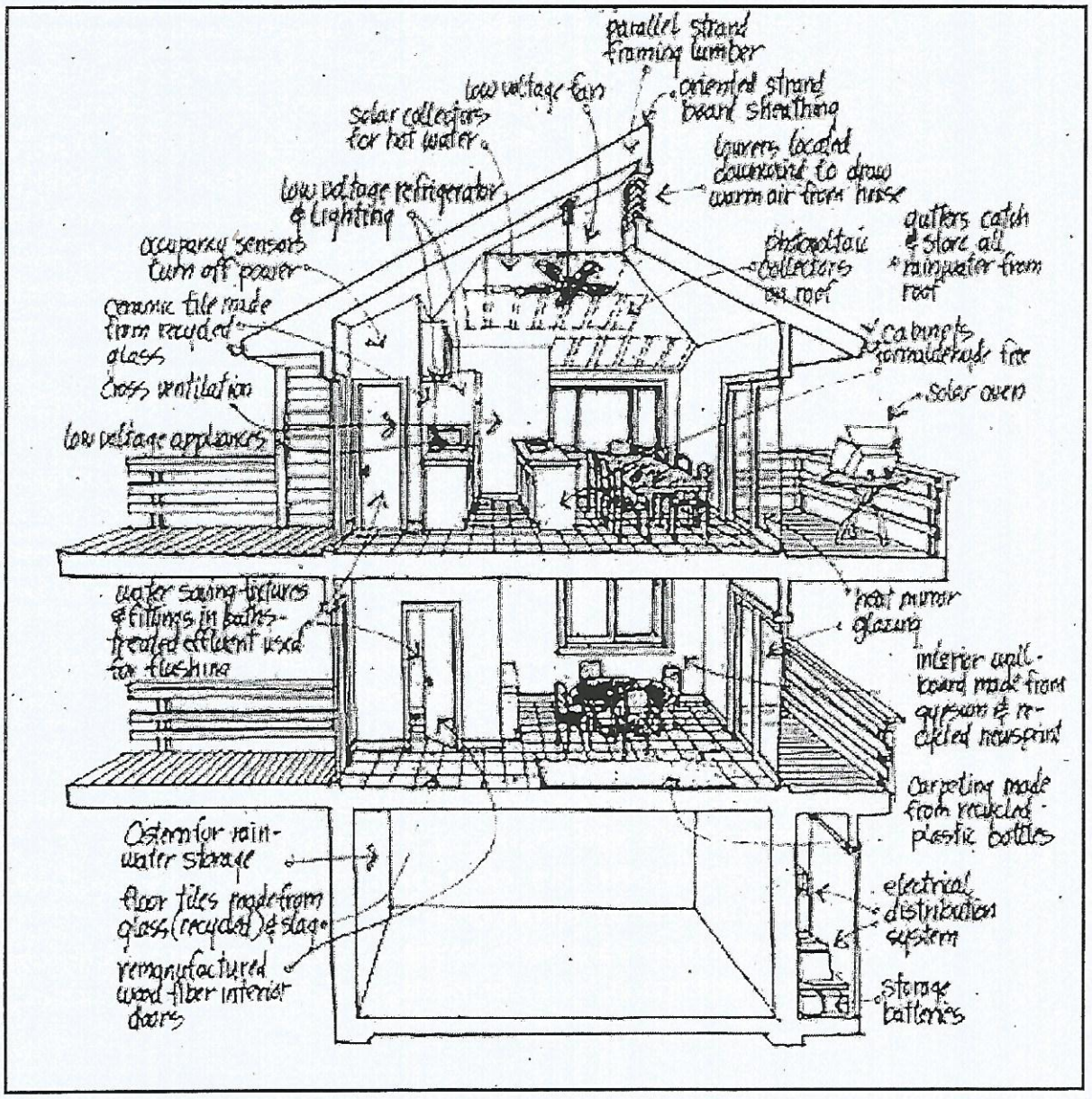
Smell

- allow natural fragrances of vegetation to be enjoyed
- direct air exhausted from utility areas away from public areas

Taste

- provide opportunities to sample local produce and cuisine

Figure 10.1 provides a conceptual conservation and building materials design for a simple accommodation.



Source: Ceballos-Lascurain (1996: 198)

Figure 10.1: Design of a Simple Accommodation

10.2.2 Satellite Camps (Sub camps)

Facilities provided at satellite camps need to be designed and managed as sensitively and efficiently as possible (please refer to **Table 10.2** for inputs).

10.2.3 Camp Sites

Camp sites can range from basic camping facilities in remote areas, to large constructed camps with extensive infrastructure. Facilities associated with camping

in wilderness should be as simple as possible, appropriate to the level of use, and appropriate to the degree of allowable impact.

10.2.4 Roofed Accommodation

There is a vigorous debate about the merits of allowing built accommodation within Category 1 to IV protected areas (in principle, their presence in Categories V and VI protected areas is not controversial). In the early days of national parks, it was almost axiomatic that protected area-based tourism and built accommodation went together. Today, too, many of the larger parks and wildlife reserves construct accommodation in the parks to serve their visitors. In many countries, however, there is opposition to accommodation in these kinds of protected areas; instead it is felt that such development should take place outside the designated areas.

There are some good arguments for locating built accommodation within Category 1 to IV protected areas, particularly where the areas are large :

- the protected area managers have stronger control over the accommodation complex and the ways visitors use the protected areas;
- The visitors spend most or all their time within the protected area, which should increase their appreciation of it, and there is less need to use transport; and
- Through fees and other financial arrangements, the protected area benefits from the money spent on accommodation and meals.

Against that, it can be argued that :

- Visitor accommodation is *per se* out of character with an essentially natural area, being often visually intrusive and potentially polluting;
- Visitor accommodation has an in-built potential to grow and, once established, is difficult to restrain; and
- By providing the centre of visitor activity outside the protected areas near established settlements, it is easier to bring benefits to local communities.

10.3 OTHERS

The utilisation of renewable energy (RE) for power supply and proper waste management should be considered in MBCA.

10.3.1 Power Supply

Renewable energy offers an exciting opportunity to the tourism sector. It is abundant, clean, and inexhaustible. It is also the most cost-effective energy source for a variety of applications, meeting between 15 and 20 percent of total world energy demand and 24 percent of the world's total electricity supply. Renewable energy in the form of traditional biomass fuels, such as wood and crop residues, represents about 14 percent of the world's total energy consumption - a larger share than coal (12 percent).

Sources of renewable energy exist in the form of direct and indirect solar radiation, the heat of the Earth ("geothermal energy"), and the gravitational effects of the moon that create the tides. Direct solar radiation striking the Earth also drives the global weather system and photosynthesis. This, in turn, creates the wind and waves, as well as biomass (plant and animal matter). The energy in falling water may also be considered a renewable energy source but only if the local environmental impacts are sustainable. Generally, new large-scale hydropower schemes are not considered a source of renewable energy due to their substantial environmental impacts.

Renewable energy is generally the cleanest option for producing energy, particularly to eliminate greenhouse gas emissions. But there are many other advantages for both individual tourism businesses. These include economic security, environmental security, and a positive image. However, RE systems can also be capital intensive as most of their cost is incurred when they are built. However, their zero or low fuel cost means the cost of energy over the life of the system (life-cycle cost) is often competitive with other energy options. Another key issue that can limit RE development is the need to establish trained support. Past experience has shown that many failures have resulted from lack of maintenance or inappropriate operation. RE technologies are also at different stages of development and therefore may have technical limitations.

A software program called RETscreen can be used to assess different RE technologies. The software can be downloaded free of charge from **http://retscreen.gc.ca.**

Several different options are presented here to provide power supply for the facilities in MBCA. However, the management is required to conduct detailed analyses of the options and locations.

a. Small-Scale Hydro (SSH)

The energy in falling water can be converted into electrical energy or into mechanical energy by hydraulic turbines. In the past, hydropower stations were often built as a part of large dam projects. Due to the size, cost, and environmental impacts of these dams (and the reservoirs they create), hydro developments today are increasingly focused on smaller-scale projects.

Although the definition of small-scale varies, only projects that have less than 10 MW of generating capacity are considered here and are abbreviated by 'SSH'. This definition also includes mini-hydro (less than1 MW), micro-hydro (less than 100 kW and pico-hydro (less than 1 kW). Small-scale hydro technology is efficient and commercially proven. Many companies supply small-scale hydro equipment in areas of the world where hydro resources are located.

Hydro potential is very site specific but can be a viable option for tourism businesses in mountainous areas where there are streams that flow with a sharp

downward gradient. Any small river or large stream with a reasonably constant water flow throughout the year can be considered. Small-scale hydro systems are modular and can generally be sized to meet individual or community needs. However, the financial viability of a project is subject to the available water resource and the distance the generated electricity must be transmitted. The two critical variables that determine the viability of a hydro site are:

- The vertical drop at which the water falls (metres), referred to as the effective head;
- The total amount of water that 'falls' (cubic metres per second), called the flow rate.

The power (P) that can be generated by falling water is approximately 7 times the product of the flow rate (Q) and the effective head (H): P(kW) = 7 x Q x H.

Therefore, the greater the available head, the lower the required water flow, and vice versa. For example, to generate 1 kW of electricity, a hydro system with a head of 100 metres will require 10% of the water flow that a site with a head of 10 metres requires. Low head sites are generally less than 10 metres while high head sites are greater than 30 metres.

Sites with very low head (<3m) present technical and economic challenges. Low head hydro equipment must accommodate considerably more water flow than equivalent capacity high head equipment and must be physically larger, which requires larger civil works. Also, the turbine's output shaft speed decreases with lower head. As a result, low head schemes generally need gears to drive high speed generators. A head of one metre and a flow rate of 54 litres per minute are considered the minimum requirements to generate electricity.

For tourism businesses, a run of river system can bring additional challenges, as the demand of power is likely to be higher when it is hot and dry which is often when the tourist season reaches its peak. A dam or weir may still be required if the water needs to be diverted and if the diversion is to take advantage of existing downward gradients.

Although SSH systems have few of the environmental impacts of large-scale hydro projects, they can still create local environmental impacts (particularly if they significantly change the amount or timing or river water flows). With careful design, particularly with any civil works that could lead to erosion, many of these impacts can be avoided.

SSH systems do not create any air or water pollution when they are operating and generally offer highly reliable power. They also have very low running or maintenance costs and can be operated and maintained by locally trained staff.

Hydro systems generally have a long project life. Equipment such as turbines can last 20–30 years, while concrete civil works can last 100 years. This is often not

reflected in the economic analysis of power projects, where costs are usually calculated over a shorter period of time. This is important for hydro projects, as their initial capital costs tend to be comparatively high because of the need for civil engineering works.

Hydro developers wishing to construct larger systems with dams generally need to invest in detailed analyses before a project can proceed. Regulator authorities may require structures or systems that prevent adverse effects on flora and fauna, particularly fish. Conversely, some hydro systems may enhance local environments through, for example, the creation of wetlands.

b. Solar Hybrid Station (SHS)

Solar hybrid station (SHS), a government initiative aided by Tenaga Nasional Berhad's wholly owned subsidiary TNB Energy Services Sdn Bhd started a RM8.9 million project in Pulau Pemanggil, Pulau Sibu, Pulau Aur and Pulau Besar to build 6 SHS for 100-odd islanders to enjoy 24-hour power. SHS project is a collaboration effort between the Rural Development Ministry and the Energy, Water and Communication Ministry, and is financed by the Malaysian Electricity Supply Industries Trust Account (MESITA).

It is a combination of solar energy and diesel generators. Solar power is harnessed via solar panels, and excess energy is stored in batteries, which can supply the villagers with electricity for five days. A total of 16 villages in Perak, Pahang, Kelantan and Sabah will get these stations. The diesel generators will be used as back-up.

10.3.2 Waste Management

A well-defined solid-waste-management program in MBCA will not only save operating costs, but also reduce the volume and toxicity of garbage being sent to the landfill. The economic costs of dumping rise as landfills in many countries fill up and shut down. Some solid waste will become toxic as it degrades, posing a threat to nearby neighbourhoods, communities, and natural resources like water supplies or air quality.

The lodging industry can solve this problem : minimise the negative effects, or reducing costs, by implementing certain strategies and policies regarding the waste stream. One key to this is deciding how MBCA can reduce, reuse, and recycle paper, glass, plastic, metal, wood, garden waste, toxic materials, and organic waste.

Domestic wastes in park and tourism developments come from toilets and urinals, showers, bathroom sinks, kitchen sinks, laundry facilities, and most floor drains. Varying amounts of water are used to carry these wastes through pipes to a treatment point. Different processing techniques are used to convert the wastes for reuse or disposal. True sustainable development would not permit direct disposal of either liquids or solids before reuse.

Responsible waste management recognises the value of reducing water needs. Properly treated wastewater can be used for toilet flushing (after approved disinfection) and irrigation (landscape needs or agricultural plantings).

The solids separated from domestic waste may be incorporated into the solid wastes (garbage) and composted into an excellent soil amendment product or anaerobically digested to produce a gaseous energy source and a residue that can also be used as a soil amendment.

If wastewater recycling for toilet flushing is used without concurrent irrigation of vegetation, there will be a volume of excess liquid that must be sensitively disposed of. This will be the amount of liquid wastes coming in each day from all sources, less the recirculated amount used for toilet flushing. Best disposal practice would use a suitable area for subsurface movement of the liquid through soils that provide good filtering and additional treatment before reaching any body of water. Direct discharge to a waterway should be the lowest priority of alternatives investigated.

Using treated, recycled wastewater for toilet flushing, rather than an equal volume of drinking-quality water, would save a large amount of water. There are also strong economic and environmental reasons for using one of more than 20 different low-volume flush toilets (6 litres per flush) currently on the market, rather than the more conventional water-wasting models. In seawater development sites, toilets may be flushed with seawater and processed with septic tank and subsurface treatment and disposal. This provides a reliable system if the corrosive nature of seawater is addressed in selection of materials used in the piping, plumbing, pumping, and treatment systems.

Similar water conservation can be realised through the use of flow-restricted, fine-spray shower heads, and sink faucet aerators. Spring-loaded handles should be installed on faucets. Laundry waste volume can be reduced through the use of machines with suds-saver cycles.

Park and tourism developments that make use of water conservation devices should make an effort to educate their visitors on the amount of water (or energy) they have conserved during their stay, compared with the conventional development. It is important to monitor the conservation devices in order to evaluate their performance.

As with all pollution, sewage is best treated by not creating it in the first place. Human waste only becomes waste when there is no use for it.

Several different methods of managing human wastes in wilderness areas, its associated level of use and visitor acceptability are shown in **Table 10.3**.

Table 10.3: Methods for Managing Human Wastes in Wilderness Areas

Method	Level of visitor use	Visitor acceptability
No facilities: Individual's responsibility		
Buried in shallow hole (cat hole) dug by the visitor, at least 60m from water bodies	Low: dispersed recreation areas with light use and soil cover.	Good with educated users.
Pit toilet: Hole at least several metres deep covered by a toilet seat and structure. Pit is covered with dirt and the structure is either demolished or moved when the toilet is full.	Low to moderate: available sites may be limited by water tables close to the surface and shallow soils.	Fairly good, although flies and smell may be a concern to users.
Compost (including worm boosted) toilet: Waste decomposes in digester tank to which carbon source, such as wood chips must be regularly added; waste can be reduced in volume by as much as 80%.	Moderately to high; requires frequent maintenance.	High
Hybrid system: waste drops into tank partly filled with water, sludge is pumped out and liquid goes to leach pond.	Moderate to high; requires frequent maintenance.	High, where leach ponds are acceptable.
Flush toilet: Flushed down toilet into septic system which is pumped regularly into a leach pond.	High; requires maintenance and regular pumping of septic tank.	High, where plumbing systems and leach ponds are acceptable.

Source: Adapted from Newsome *et al*. (2002)

a. Specific Waste Treatment Technologies

Technologies that avoid or minimise the use of water and reuse the nutrients in domestic waste in beneficial ways are described below.

Conditions at sustainable developments favour simple, reliable, passive techniques for waste treatment. Systems that have few moving parts, controls, and monitoring requirements should be used. Continuity of operation and maintenance knowledge is essential.

Waste treatment systems must also be able to withstand seasonal fluctuations in use. Preparation for an idle period should be simple, and no energy should be required when the system is not being used. If an innovative technology is to be employed for waste treatment, it should have a conventional backup system, or be sufficiently redundant that multiple failures are unlikely.

i. Dry Toilets (Composting Toilets).

A composting toilet consists of a large tank located directly below the toilet room. Wastes enter the tank through a large diameter chute connecting to the toilet, and decompose in an oxygen rich environment. No water is used for the toilet, but a bulking agent (such as wood shavings) is added to

improve liquid drainage and aeration, and to provide fuel. A small fan draws air through the tank and up the vent pipe to ensure adequate oxygen for decomposition and odourless operation. Internal components (such as ducts, baffles, and rotating tines) enhance the composting process. The finished compost can be removed from the lower end of the tank about once each year. It can be used as a fertilized for soil.

Composting toilets need a mild temperature, moisture, fuel, and air to function. Liquid may have to be added to the tank to keep the compost pile moist during periods of little use or a bulking agent added periodically to improve the compost texture.

Composting toilets have several advantages over other systems - e.g., no water is used and only a small amount of energy is needed for an exhaust fan; valuable nutrients are used to benefit soils; proper maintenance requires little time.

There are some disadvantages to this system. The user is close to the sewage treatment systems and this bothers some visitors. Without proper maintenance, the tank can become anaerobic and unpleasant odours arise. Undesirable pests can take up residence in the composting tank. The availability of a bulking agent in some areas can also be a problem.

ii. Anaerobic Waste Treatment.

Anaerobic waste treatment (septic systems) is accomplished through microorganisms living in the wastewater. Anaerobic microorganisms work in an environment where there is no free oxygen. Complex reactions and interactions take place with the resulting generation of some offensive gaseous by-products. These unpleasant odours are actually an indication of an efficient progression of the anaerobic process to remove the pollutants from the waste stream.

This type of system is reasonable to consider for smaller developments, where the by-product gases can be separated from occupancy areas, dissipated with good air movement, or neutralized with soil or carbon filters. Since slow treatment means longer holding periods (shallow depth tanks), large, isolated treatment and disposal areas are needed. Treated wastewater (effluent) is usually disposed of in an underground system that passes the effluent through carefully selected undisturbed soil profiles. These soils must further filter and remove nutrients as the effluent makes its way to the groundwater or other bodies of water.

One variation of this type of treatment uses part of its treated effluent for toilet flushing. The stored recycled effluent should receive some aeration to ensure odours-free recycle water in the toilets.

This type of waste treatment system has several advantages. It is relatively inexpensive to install, and is not complex to operate and maintain. It provides a consistently good quality effluent. Most components can be installed aboveground, or they can be buried or partly buried. Good quality flushing water can be provided to reduce water supply needs and final disposal volumes.

The disadvantages are that septic tank odours must be dealt with properly. Several pumps and blowers can be involved, which creates maintenance and power costs, and can cause noise in some developments. Septic tank solids require proper disposal. An aerobic digestion tank would reduce volumes for disposal. A sand drying bed can be used for digested sludge drying, and the dried sludge should be buried in a landfill. A fairly large area is required for installation. There is no known manufacturer of a complete package system.

Prior to committing time and resources, it is prudent to contact actual users of similar systems - talk with a designer, system operator, an owner, and possibly a regulatory agency inspector who has observed performance.

iii. Aerobic Waste Treatment.

Aerobic waste treatment is also accomplished with micro-organisms. However in this system, air is bubbled into the treatment process to ensure plenty of free oxygen. Aerobic organisms work about 20 times faster than anaerobic organisms. No offensive gas odours are released in this treatment process. Since they process is so much faster, much less holding time is required and less treatment area is needed.

This type of treatment plant is reasonable to consider for all sizes of park and tourism development, and because offensive odours are not normally produced, this type of system can be located close to occupied areas. The normal effluent quality of a properly designed and operated system meets most all secondary treatment standards. With a reasonably small filter, high quality effluent can be produced for irrigation and recycled toilet flushing water. With carefully planned effluent recycling and irrigation reuse, little or no effluent disposal would be required. If disposal is required, several options are possible.

There are several manufacturers of small aerobic treatment plants. The best plants for harsh environments and isolated areas are fabricated from durable, low maintenance materials, simple to operate and maintain, designed to use the fewest moving parts, and consistent in effluent quality. They are also quick to install and put in service, proven in similar installations, and completely assembled and warranted by one manufacturer. A good manufacturer also provides, at a reasonable cost, technical and

monitoring services on the new plant for at least one year after initial startup.

Advantages of such a system are that all materials in contact with liquids are non-corrosive (plastic, fibreglass, rubber, stainless steel) and can be buried or installed aboveground. The blower is the only moving part and requires only simple, routine maintenance. Effluent quality is consistently good. Excellent recycle and reuse options are available. The process easily handles surge loadings, as well as underloaded periods. Land area required is about 0.1 acre per 10,000 gallons of rated capacity. Site installation and startup can usually be accomplished in five working days or less. Few spare parts are needed. Purchase costs are competitive with other similar-sized treatment units. Unskilled operators have successfully followed infrequent, telephoned system adjustment instructions to maintain top performance.

The disadvantages are that most components are fabricated, assembled, and shipped from other sources - few local materials would be used. The blower, although small, needs to be run continuously. The noise would have to be muffled, and a constant power cost would be involved.

b. Alternative Disinfection Methods

Traditionally, water from conventional treatment systems is disinfected with chlorine or chlorine compounds before being released back into the environment or reused. A side effect of this is that the chlorine or chlorine compounds are very reactive and sometimes produce highly persistent, toxic chemicals. Many environmentalists believe that there is no justification for use of chlorine and its compounds for disinfection.

Most public health codes call for disinfections with chlorine, and they would have to be changed to allow for either no disinfections or the use of other disinfectants. Less desirable possibilities include using less chlorine or removing the chlorine after the proper contact time. Dechlorination requires additional chemical feed and training.

The purpose of disinfections is to ensure that no virulent organisms are present after the water has been processed in one of the systems described earlier. The most common alternative disinfectants are ozone and ultraviolet light.

An entirely new treatment technology, introduced in September 1993, appears to provide excellent disinfections without the formation of environmentally harmful by-products. The National Park Service is arranging pilot studies at existing water and sewage treatment facilities to evaluate this emerging innovative technology.

10.3.3 Water Treatment

The type(s) of treatment required will depend on the source of water and the quality of source water.

a. Groundwater

Treatment of groundwater is accomplished by simple disinfection using sodium hypochlorite (laundry bleach). The sodium hypochlorite can be proportioned into the water being delivered to the storage tank using a wind-powered or photovoltaic metering pump. Contact time in the storage tank is required to ensure proper disinfection.

An emerging water disinfection technology involves the use of liquid chlorine dioxide (Aqua Chlor). This technology provides excellent bactericidal qualities while minimizing the formation of environmentally harmful disinfection by-products.

b. Surface Water with Low Turbidity

Before disinfection, surface water requires filtration. For resource-related developments, the recommended filtration processes would be slow sand filtration or cartridge filtration. Only the water used for drinking, washing, and cooking would need to be completely treated. Dual distribution systems are required - one for drinking water and one for lesser quality uses such as toilet flushing. The slow sand filter is an old technology that has recently reemerged. An even graduated natural sand (1m deep) is placed in a constructed basin. The supply water is introduced into the top layer of sand and travels downward through the sand filter to perforated collection pipes on the bottom of the filter. Impurities in the water are removed in the top layer of the filter and accumulated for periodic removal by scraping. The removed impurities and top 15mm of sand can be dried and used as a soil conditioner. No chemical additions or additional power are required. Operations and maintenance requirements are low. However, a certain land area is required for the filter basin. Disinfection with bleach is the final step.

Cartridge filters using microporous filter elements (ceramic, paper, or fiber) with small pore sizes are suitable for low turbidity surface water. (Use a graduated series of cartridge sizes to prevent rapid clogging of filter.) Again, a dual distribution system is recommended to lessen the volume of high quality water needed. Head loss through a cartridge filter is higher than through a slow sand filter, so a booster pump may be required to maintain adequate pressure in the water system. The paper and fiber filters are consumptive as they must be disposed when full of sediment (disposal frequency depends on turbidity in supply water). The ceramic cartridge filter can be cleaned mechanically (scrapping) and reused. Sediment cleaned from the ceramic cartridge can be dried and used as a soil amendment. Operations and maintenance is minimal. Disinfection with bleach is the final step.

c. Surface Water with High Turbidity

If the source water has a turbidity above 15-20 NTUs (nethelometric turbidity units), complete conventional treatment is required. This involves the addition of synthetic

chemicals such as alum and polymer in a coagulation stage, followed by a flocculation stage before filtering in a rapid sand filter. The filter is hydraulically backwashed (usually once per day) to remove accumulated sediment from the filter. This backwash waste (containing the added chemicals) must be dried and disposed of in an approved manner. The complexity and cost of operation is high, maintenance costs are high, and chemical and power inputs are required. Dried waste sediments cannot be used as a soil amendment without further processing. The final step is disinfection with bleach.

10.3.4 Water Storage

Gravity storage of any water product (raw, finished, reclaimed) should be used wherever possible. For every 0.3 m elevation, a storage tank is located above a use point, 0.433psi static pressure is generated. Gravity storage enables wind and photovoltaic pumping systems to be effective. Because these pumping systems work at relatively low pumping rates, the gravity storage tank acts as an accumulator to store water for heavy demand periods or for days when the wind does not blow or the sun does not shine. Photovoltaic pumping systems can provide moderate daily flows of up to 113,500 litres per day and produce total dynamic heads of 30 - 50 m.

Another means of transferring raw water from a source to a storage tank at a higher elevation without electrical or hydrocarbon input is the hydraulic ram. The hydraulic ram is a self-acting impulse pump that uses the momentum of a slight fall of water to force a part of the water to a higher elevation. A hydraulic ram is noisy, but the noise can be successfully mitigated with the use of sound-attenuating materials in an enclosure. It is practicable to operate a ram with a fall of only 0.5m, but as the fall increases, the ram forces water to proportionately greater heights. The hydraulic ram is well suited for areas where electrical power is not available and where an excess supply of water is available.

As a gravity storage tank will be located in an elevated location, visual quality will be important. Multiple smaller tanks may be easier to screen than one large tank. Multiple tanks also provide greater flexibility in operation. Tank materials should be noncorrosive and sectioned for minimal transportation requirements to the tank site.

10.4 BUDGET

In order to provide support for the facilities developed in MBCA, the provision of supporting infrastructure or public services are considered essentials. **Table 10.4** provides an estimated budget to be allocated for such services, totalling an amount of RM0.87 million. Among others, it includes power supply, waste management, water treatment, water storage and maintenance.

Table 10.4: Budget for Infrastructure/Public Services (RM thousand)

Description			Timeframe (2005 – 2012)								Amount	Total Amount
			05	06	07	08	09	10	11	12		
1.0	Power Supply (refer to Section 10.3.1a)											
	1.1	Either mini-hydro, micro-hydro or solar hybrid		400					100		500	**500**
2.0	Waste Management (refer to Section 10.3.2)											
	2.1	Design incorporated into building designs (refer to Table 5.12)										
3.0	Water Treatment (refer to Section 10.3.3)			100					50		150	**150**
4.0	Water Storage (refer to Section 10.3.4)			100					50		150	**150**
5.0	Maintenance				10	10	10	20	10	10	70	**70**
Total				600	10	10	10	20	210	10		**870**
Grand Total (RM million)												**870**

11 ADMINISTRATION

11.1 INTRODUCTION

This chapter presents the administration of tourism in MBCA, including the proposal to create a tourism unit to handle tourism services. Several programmes and activities are also recommended for consideration by the management to enhance the attractiveness of the destination.

11.2 OPERATION

The operation to facilitate visitations to MBCA needs to be improved. Here, several recommendations are provided.

11.2.1 Staffing

A tourism unit need to be incorporated under the Research and Development Division. Its main responsibility is to handle the smooth operation of tourism in MBCA and DVCA. The reason to include DVCA (possibly Borneo Rainforest Lodge too!) is purely from the business perspective. Visitors can be provided alternative choices of either choosing DVCA or MBCA, through the concept of a "one stop centre".

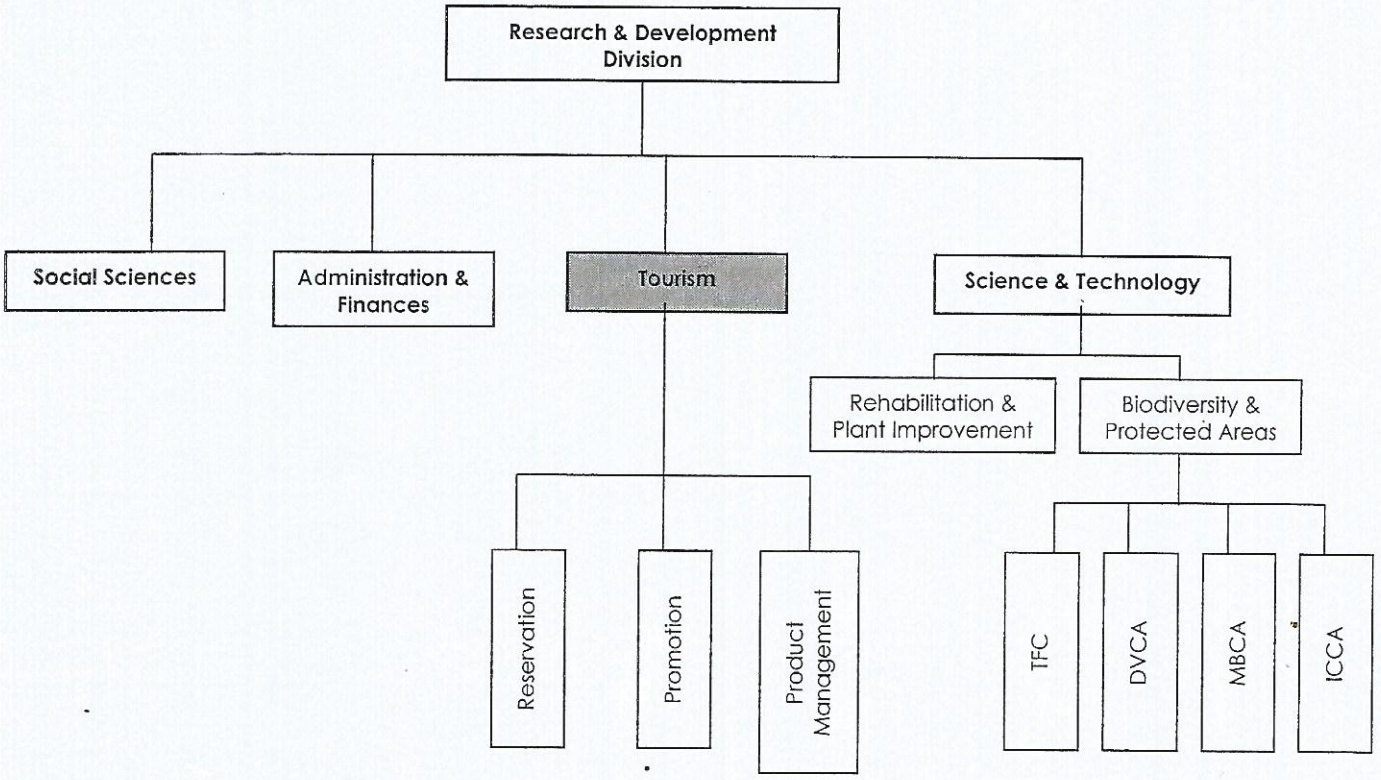


Figure 11.1a: Proposed Organisational Structure (Tourism)

However, there are possibly two choices to incorporate the tourism unit (refer to **Figure 11.1a** and **11.1b**). With reference to **Figure 11.1a**, tourism plays a significant role under Research and Development Division and is to be headed by a manager. As for **Figure 11.1b**, it is to be headed by an executive, and report directly to the Senior Manager of Biodiversity and Protected Areas.

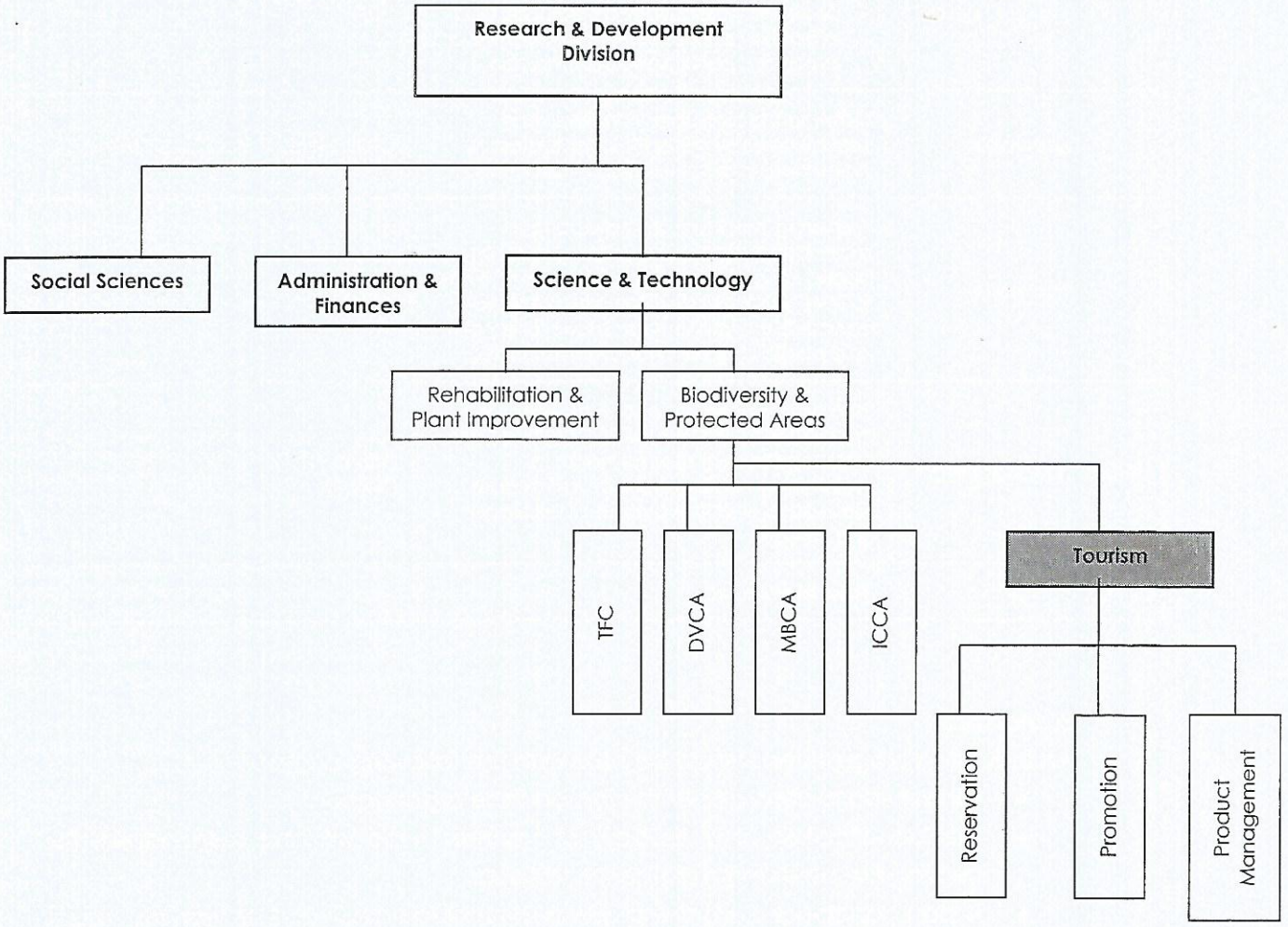


Figure 11.1b: Proposed Organisational Structure (Tourism)

The proposed manpower to handle tourism is as shown in **Table 11.1**. The recommended manpower is considered to be an ideal figure, but some of the posts can be used in multi-tasking (not exclusively to the portfolio assigned to the individual) or utilising existing manpower by redefining their job descriptions.

The requirement needs to be appropriate to the posts, e.g. business background for promotion, and tourism management for product management. Minimum qualification would ideally be at least a diploma.

Table 11.1: Proposed Manpower

Item	Objective	Manpower
Tourism	• To plan and develop tourism products; • to promote the products; • To market the products to targeted market segments; and • To manage the products (facilities and attractions) in its highest standard towards achieving better visitors satisfaction.	To be headed either by a Manager or Executive (1)
Reservation	Cater to the bookings of facilities and programmes by visitors (tour operators, individuals or groups). Collect visitor fees.	Clerk: Head Office (2) & Tawau (2)
Promotion	Preparing brochures and awareness materials for distribution to tour operators, public, schools and other visitors. In addition, to liase with tour operators and media in conducting fam trip; road shows for schools and public. Liase with local communities.	Officer (1)
Product Management	Plan and develop new tourism products in cooperation with Promotion Officer; and to work together with site manager in maintaining existing products/attractions at site. Also to work out budget of packages and services.	Officer (1) Clerk (1)
Total Manpower		**8**

b. Induction

An induction programme should be held with the following components:

- Further information about the job and the organisation;
- The identification of a "buddy" or "mentor" who will take responsibility for helping the new staff member to settle in;
- A staff handbook containing details on matters as diverse as working hours, health and safety guidelines, staff discounts, etc;
- A talk by the manager/executive to help show the new staff where they fit into the organisation;
- A tour of the area to orientate the new staff;
- Time to learn about the attractions, the product it offers, and the markets it serves.

11.2.2 Tour Operation and Reservation

All tour operators are to be allowed to conduct tour into MBCA, but need to fulfil certain requirements. These requirements are: tour operators to attend fam trip, having tour guides that had undergone guide training in MBCA, utilising the services of localised guides and porters (refer to **Sections 5.5** and **8.3.2**).

Reservation for visits to MBCA is to be made simple, with ease to potential visitors towards seeking information of the availability and pricing of the facilities in MBCA. With the advancement of electronic communication, bookings could be made

available directly or through website. It is to include payment via credit cards. Example of successful implementation of utilising the website for bookings and payments can be observed with AirAsia.

a. Procedures

Procedure for reservation is as shown in **Figure 11.2**. It can be done either through Head Office in Kota Kinabalu, Tawau office or on site at the Security Gate. The deposit paid by visitors or tour operators is transferable but non-returnable for cancellation, subject to a nominal cancellation fees or within specific period.

All fees or expenses to be paid in full before entry to MBCA, except for guides, porters and meals which are to be paid on site after utilising such services.

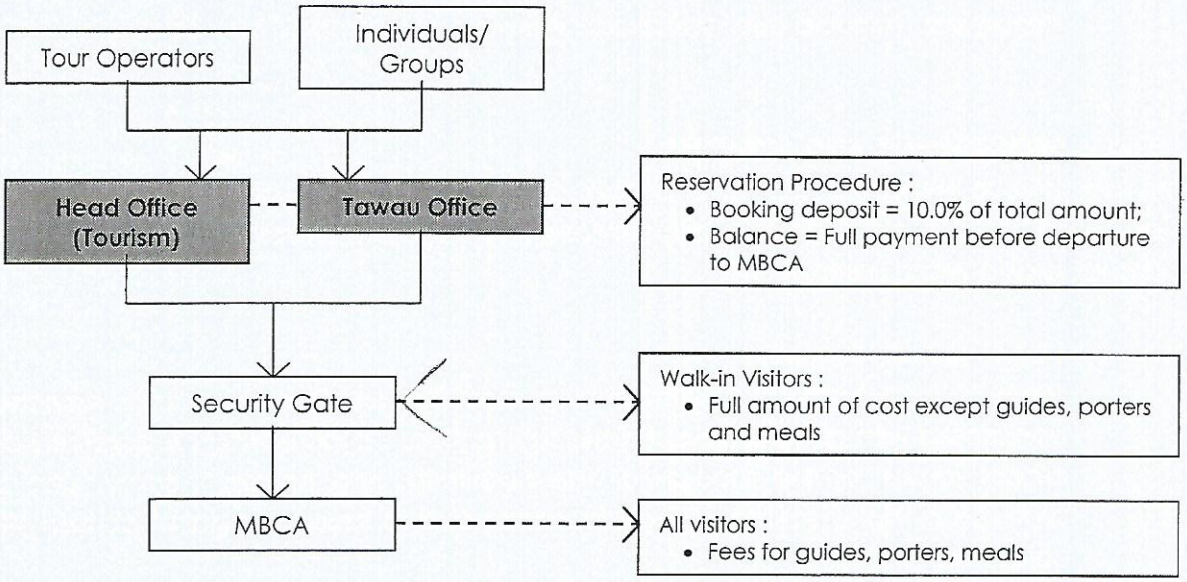


Figure 11.2: Booking Procedures for Visitors

b. Pricing (Packages)

The pricing for usage of facilities and services in MBCA is to be regulated by the management, published and made known. Adequate notice should be given should changes be made, in order for tour operators to make necessary changes and inform overseas clients. The final prices for packages should be left to individual tour operator to decide, as the final prices of the packages will be based upon the quality of services provided by them.

Incentives should also be given to tour operators for bringing visitors (only those under categories C, D and E) :

- 20 to 30 per cent discount on accommodation;
- their guides and/or drivers should be given exemption from all user fees and accommodation; and
- Exemption on "Vehicle Access Permit" for registered vehicles owned by tour operators.

11.2.3 Management Information Systems (MIS)

The development of MIS is to provide managers with the information they need to make sensible decisions. The types of information that may be required include the followings :

- Visitor numbers in total and by types of visitor;
- Visitor expenditure and where they are spending their money on site;
- Staff costs;
- Major unexpected bills;
- Income from rents, franchises and concessions; etc.

Reservation and payments through website need to be promoted, whereby its usage must be made simple, with ease to potential visitors towards seeking information. Regular updates for website need to be done to indicate its dynamism. It should also include latest news or events (past and coming).

11.3 PROGRAMMES AND ACTIVITIES

In addition to designed activities for visitors in MBCA, several other programmes are discussed here, i.e. provision of quality services, certification towards Green Globe 21, and branding as a World Heritage site.

11.3.1 Quality Services

There is a widespread understanding that the provision of quality services is concerned with generating customer satisfaction. It is increasingly recognised as a critical factor for the success of the hospitality and tourism industry, and the provision of highly satisfying quality service need to balance against conservation objectives in MBCA.

In terms of visitor satisfaction, quality service is the result of a comparison of expectations of a service one will receive and perceptions of the performance of the one providing that service. In a study on customer service, Whipple and Thach (1988: 20) note that the "destination and tour operator are not the criteria upon which good or bad evaluations of the trip are based", but that of 'good service is crucial' to the success of the tour experience.

Table 11.2 provides an insight into some of the activities that need to be incorporated towards achieving the five dimensions in the provision of quality services. These dimensions are reliability, tangibles, responsiveness, assurance and empathy.

Table 11.2: On-site Visit Quality Assurance Activities

Dimension	Activities
Reliability	Confirm scheduled service is being operated as advertised and intended by MBCA or tour operators;
	Make adjustments necessary to bring service up to standard if warranted.
Tangibles	Confirm cleanliness of facility and equipment;
	Check safety of equipment and operational practices;
	Confirm the neatness of the appearance of personnel.
Responsiveness	Initiate contact with visitors to confirm your willingness to help them and provide prompt service or to resolve their problems.
Assurance	Present a demeanour of confidence and courtesy;
	Make certain you and your on-site staffs know the answers to questions and willingly provide them to visitors.
Empathy	Present a caring, empathetic demeanour;
	Make certain on-site personnel have sufficient authority to make reasonable exceptions to policies and rules so that service can be customised to meet visitor needs.

11.3.2 Certification

Visitors are attracted to destinations that have a positive reputation, and are actively avoiding destinations that have social or environmental problems. There are international schemes for recognising the adoption of high environmental standards in tourism provision, such as the Green Globe 21 scheme. Such green standards are intended to :

- educate and inform (visitors, communities, industry, and others);
- stimulate innovation (into appropriate technologies and practices);
- protect resources (through conservation practices); and
- derive economic benefits (through cost savings and competitive positioning).

After the Earth Summit in Rio de Janeiro in 1992, Agenda 21 became an issue in tourism operations throughout the world. Subsequently in 1994, the idea of "Green Globe 21" (GG21) was developed as a global system for individuals, companies and communities. Green Globe 21 means:

- quality alliances for global coverage and local implementation;
- state of the art environment management and support systems;
- clear standards based on ISO and Agenda 21;
- independent certification; and
- worldwide, web-driven promotion of brand holders for consumers.

GREEN GLOBE 21 (GG21) is the global Affiliation, Benchmarking and Certification program for sustainable travel and tourism (refer to **Table 11.3**). It is based on the Agenda 21 principles for Sustainable Development endorsed by 182 Heads of State at the United Nations Rio De Janeiro Earth Summit. The process of certification

revolves around eight core principles that permit measurement. These principles are that nature-based tourism should :

i. have a natural area focus that ensures visitors have an opportunity to directly and individually experience nature;
ii. provide interpretation and educational services that give visitors an opportunity to experience nature in ways that lead to greater understanding, appreciation and enjoyment;
iii. represent best practices in ecologically sustainable practices;
iv. contribute to the conservation of natural areas and cultural heritage;
v. provide ongoing contributions to the local community;
vi. respect and be sensitive to cultures existing in the area;
vii. consistently meet consumer expectations; and
viii. be marketed and promoted honestly and accurately so that realistic expectations are formed.

Table 11.3: Green Globe 21: Accreditation Scheme

Under the Green Globe accreditation scheme, companies, communities, suppliers, professionals, etc. can graduate through three categories to obtain higher levels of recognition for the sustainability of their operations, which they can then use for marketing purposes.	
Affiliates	Affiliated companies etc. are those who wish to gain a foothold in sustainable tourism and access a whole range of support and information sources in order to be officially recognised as environmentally sound, and to support and spread eco-conscious values.
Benchmarking	Benchmarking companies and communities are on the second step of the pathway towards sustainable travel and tourism. They have access to the Green Globe 21 web site which provides them with information on benchmarking. They receive sustainability assessment and are assisted in their progress towards the next step.
Certifying	Certified companies and communities have travelled further along the Green Globe 21 path to sustainable travel and tourism. Certified members have their performance independently assessed and audited. Audits take place regularly to ensure that performance levels are maintained or improved.

Source: http://www.greenglobe21.com

The advantages are obvious: participating companies and communities are independently assessed and certified and consumers have the opportunity to check Green Globe's website free of charge and can rely on the quality of certified companies in their destination. The costs for participating companies are relatively small. Depending on the size of the company, costs range from USD350 to USD5,000, while communities are charged with USD50,000 in the first phase. Consecutive costs depend on the size of the community and the intensity of service and consultancy required. Assessment and implementation of the standards are time consuming and it can take up to a few years until a participating company is officially certified. However, the effort alone is also awarded by the right of using the GG21 logo. Once certification has been completed, the GG21 logo with a tick may be used for advertising purposes (refer to **Figure 11.3**).

Figure 11.3: Green Globe 21 Certification Logo

Note : Scheme like ISO 14001 certification, an environmental management system, has been criticised as being more concerned with process rather than with what is being done. As an example, a company making weapons for biological warfare can be certified to ISO 14001. At least Green Globe 21 is explicit as to its function and purpose.

11.3.3 Branding

World Heritage (WH) designation is not intended as a tourism marketing device, but it may work that way. From a tourism perspective, however, World Heritage designation acts as an international top brand in nature tourism, and perhaps also as a collectable set. It is common place for tour operators using World Heritage areas to advertise that fact. World Heritage designation may therefore increase the number of tourists who visit a site and the amounts they spend; but this is by no means certain.

Study by Buckley (2004) on six of the 14 World Heritage Areas in Australia indicates that the proportion of international visitors seems to have grown steadily since listing at all the WH sites. In addition, Galvin (1997) noted that the US National Parks Service reported that :

> *Rather than being harmful to local and community interests, World Heritage designation appears to be economically beneficial and a lure for foreign tourists. It correlates closely with increased visitation. During the period 1990-1995, visitation to U.S. World Heritage parks increased 9.4%as opposed to a 4.2% increase for all parks. There is evidence to suggest that a significant part of the increase is derived from increased international tourism; World Heritage designation makes it more likely that foreign visitors, especially those with specialised interests, will learn about and consider visiting these parks.*

Under Article 2 of the *World Heritage Convention* (UNESCO, 1972) the criterion for listing is "outstanding universal value" from scientific, conservation or aesthetic viewpoints. This is reiterated and expanded in Clauses 43-5 of the *Operational Guidelines* (UNESCO, 1998), which cover "criteria for inclusion of natural properties in the World Heritage List". Signatory nations are required to report periodically on their application of the *World Heritage Convention*, and under the *Explanatory Notes to the Operational Guidelines*, Article II, 5 (UNESCO, 2000), these reports should include "visitor/tourism pressure", as a potential threat.

Article 2 of the World Heritage Convention defines natural heritage as:

i. natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
ii. geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
iii. natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

For a property to be included on the World Heritage List as natural heritage, a series of criteria and assessment is to be undertaken on behalf of UNESCO by the World Commission on Protected Areas (WCPA) of the World Conservation Union (IUCN). The World Heritage Committee must find that it meets one or more of the following criteria and fulfils the conditions of integrity. Sites nominated should therefore:

i. be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features; or
ii. be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; or
iii. contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance; or
iv. contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

A more detailed description of World Heritage natural and cultural criteria can be found in: *UNESCO. Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage. Operational Guidelines for the Implementation of the World Heritage Convention. World Heritage Centre*. This document can be found in full at the World Heritage Centre website at http://www.unesco.org/whc/nwhc/pages/doc/main.htm).

A WH site, again particularly in relation to natural heritage, attention is paid to the integrity of the site. The definition of integrity is a lengthy and complex one, but essentially is concerned with :

- boundary issues, to ensure that the whole of any one phenomenon is included (e.g., the entire basin area), and that the size is sufficient to demonstrate the totality of any one process or to genuinely protect an ecosystem, and generally, to provide for an adequate buffer zone around

the area of universal value, either within or external to the boundary of the site;

- protection issues, to ensure adequate long-term legislative, regulatory or institutional protection; and
- management issues, including the development and implementation of an adequate plan of management.

An example from the first WH site in Sabah is shown in **Table 11.4**. It was inscribed in 2000 as a natural site.

Table 11.4: Example of Kinabalu Park as World Heritage Site

Location	6° 0' N, 116° 21' E
Inscribed	2000
Agency	Sabah Parks
Criteria	Natural (ii) and (iv)
Justification for inscription	The Bureau recommended to the Committee that Kinabalu Park be inscribed on the World Heritage list under natural criteria (ii) and (iv). The site has a diverse biota and high endemism. The altitudinal and climatic gradient from tropical forest to alpine conditions combine with precipitous topography, diverse geology and frequent climate oscillations to provide conditions ideal for the development of new species. The Park contains high biodiversity with representatives from more than half the families of all flowering plants. The majority of Borneo's mammals, birds, amphibians and invertebrates (many threatened and vulnerable) occur in the Park.

11.4 IMPLEMENTATION OF STRATEGIES

Based upon the strategies recommended in Section 4.5' (refer to **Table 4.1**), **Table 11.5** provides the implementation to be undertaken by Yayasan Sabah (especially MBCA) and other agencies in the state.

A review in mid-2008 need to be conducted in preparation for the Mid-term Review of the Ninth Malaysia Plan (2006-2010) and also in 2009 in preparation for the Tenth Malaysia Plan (2011-2015) for the purpose of getting allocation for infrastructure development in MBCA. These preparations need to be consolidated together with the State Economic Planning Unit (SEPU) and the Ministry of Tourism, Environment and Culture (MTEC).

In developing tourism and the needs to provide a conducive environment for workers and visitors, two important legislations are to be observed, i.e. for tourism (*Tourism Industry Act, 1992*) (http://www.parlimen.gov.my/AKTA/1992/ACT-482.pdf) including premise registration (http://www.motour.gov.my/laman_web/index.php?page=hotel), and occupational safety (*Occupational Safety and Health Act 1994*) (http://www.niosh.com.my/osha.html).

Table 11.5: Implementation of Strategies in MBCA

Policies	Strategies	Agencies involved	2005	2006	2007	2008	2009	2010	2011	2012	Notes
A. Development of Sustainable Tourism											
A1	S1	SEPU & YS									Section 4.4
	S2	YS, MATTA, STB									Regular forums conducted
	S3	YS									Section 5.2
	S4	Information									
A2	S1	YS, MATTA, MOCAT & STB									
	S2	YS & private sectors									Section 5.2.1
B. Administration											
B1	S1	YS									Section 11.2.1
	S2	YS									
	S3	MATTA, STB, YS									Section 11.2.2
	S4	YS									Refer to current system in DVCA
	S5	Information									Need to work with MATTA
B2	S1	MOTOUR & YS									Required under the law
	S2	MOTOUR, STGA & YS									Required under the law
B3	S1	YS									Section 11.3.2
B4	S1	YS									Requiring approval by management
B5	S1	STGA & YS									
	S2	YS									Requirement under OHSA
C. Promotion and Publicity											
C1	S1	YS									Section 6.3
	S2	MOTOUR, STB & YS									
C2	S1	MATTA,									
	S2	STB & YS									Sections 6,4.1 & 6.4.2
	S3	MATTA, STB & YS									Section 6.6
	S4	STB & YS									
C3	S1	STB & YS									Section 6.5
	S2	MOTOUR, STB & YS									Section 6.5.2
	S3	DE & YS									Section 6.5.2
	S4	UMS & YS									
	S5	STB & YS									Section 6.5.2
C4	S1	MTEC & YS									Section 11.3.3
D. Facilities Management											
D1	S1	YS									
	S2	YS									Section 10.2
D2	S1	YS									
D3	S1	YS									Section 10.3.1
	S2	YS									
D4	S1	YS									Section 10.3.2
E. Human Resource Development											
E1	S1	YS									Section 5.4
	S2	YS									Section 5.4.1
	S3	YS									Section 11.2.1(b)
	S4	YS, MOTOUR, STB, STGA									
	S5	YS									
	S6	YS, SFD, SWD, STGA									Section 5.5
E2	S1	YS, MATTA									Section 11.2.2
	S2	YS, MATTA, STB									

Table 11.5: Implementation of Strategies in MBCA (*continue...*)

Policies	Strategies	Agencies involved	2005	2006	2007	2008	2009	2010	2011	2012	Reference to this document
F. Environmental Awareness											
F1	S1	YS, DEd									
	S2	YS, DEd									
	S3	YS									
F2	S1	YS									
	S2	YS									Section 9.4.2(f)
G. Local Communities											
G1	S1	YS									
	S2	YS									Section 8.3.2
	S3	YS									Section 8.3.2
	S4	YS, SWD									Section 8.3.1
G2	S1	YS									Section 8.3.4
	S2	STB, KARYANEKA									
	S3	YS,									
K. Monitoring											
K1	S1	YS, UMS, STB									Section 12.2
	S2	YS, UMS, SWD, SFD, STB									Section 12.3

Legends

Policy
Implementation

DEd	Department of Education
KARYANEKA	Malaysian Handicraft Centre
MOTOUR	Ministry of Tourism, Malaysia
OHSA	Occupational Safety & Health Act 1994
SFD	Sabah Forestry Department
STGA	Sabah Tourist Guide Association
UMS	Universiti Malaysia Sabah
DVCA	Danum Valley Conservation Area
MATTA	Malaysian Association of Tours & Travel Agents
MTEC	Ministry of Tourism, Environment & Culture
SEPU	State Economic Planning Unit
STB	Sabah Tourism Board
SWD	Sabah Wildlife Department
YS	Yayasan Sabah

11.5 BUDGET

The budget for administration and overall for sustainable tourism development are show in **Table 11.6** and **Table 11.7** respectively.

11.5.1 Administration

The budget to be allocated for manpower, certification and branding would be in the region of RM2.881 million over the years (refer to **Table 11.6**). The bulk of the amount would be for the employment of 8 staff (refer to **Table 11.1**). The amount allocated includes salary, EPF, SOCSO, insurance, medical benefits, allowances and claims.

11.5.2 Overall Tourism Development Budget in MBCA

The overall budget allocation required for the development of tourism in MBCA till 2012 would be totalling an estimated amount of RM72.341 million (refer to **Table 11.7**), with varying sums for its annual implementation and operation.

Table 11.6: Budget for Administration (RM thousand)

Description			Timeframe (2005 – 2012)								Amount	Total Amount
			05	06	07	08	09	10	11	12		
1.0	**Administration and Management**											
	1.1	Staffing (inclusive of EPF, SOCSO, insurance and medical benefits										
		1.1.1 Manager or Executive (1)		66	68	71	74	78	81	85	523	
		1.1.2 Officers (2)		96	100	105	110	116	122	128	777	
		1.1.3 Clerks (5)		120	126	132	138	144	152	159	971	
	1.2	Allowances & Claims (accommodation, mileage, others)		50	50	10	10	10	30	10	170	
	1.3	Training (refer to Table 5.12)										
	1.4	Management Information System		50	20	20	20	10	30	20	170	**2,611**
2.0	**Certification**											
	2.1	Green Globe 21 certification		5	50	50	50	15			170	**170**
3.0	**Branding**											
	3.1	World Heritage designation		5	5	20	20	50			100	**100**
		Total		392	419	408	422	423	415	402		**2,881**
											Grand Total (RM thousand)	**2,881**

Table 11.7: Overall Budget Summary for Tourism Development in MBCA (RM ten thousands)

Descriptions				Timeframe								Amount	Total Amount
				2005	2006	2007	2008	2009	2010	2011	2012		
1.0	**Facilities and Capacity Buildings** (refer to Table 5.12)												
	1.1	Facilities											
		1.1.1	Security Gate	100.0	120.0	20.0		20.0				260.0	
		1.1.2	Maliau Basin Studies Centre (MBSC)	80.0	40.0	40.0	40.0					200.0	
		1.1.3	Agathis Camp	50.0	30.0							80.0	
		1.1.4	Belian Camp (refer to 1.1.2)										
		1.1.5	Satellite Camps		100.0	50.0						150.0	
		1.1.6	Ecolddge					500.0	340.0	1,500.0	1,100.0	3,440.0	
		1.1.7	Supporting Facilities		30.0	30.0	20.0		20.0	20.0		120.0	
		1.1.8	Wilderness Trails		40.0	10.0		10.0	10.0			70.0	
		1.1.9	Township				20.0	10.0	700.0	880.0	400.0	2,010.0	
		1.2.2	Facilities Management		5.0	4.0	5.0	4.0	4.0	4.0	4.0	30.0	
		1.2.3	Rangers, Guides & Porters (refer to 3.1)										**6,418.0**
2.0	**Promotion** (refer to Table 6.6)												
	2.1	Exhibits		1.0	31.0	26.0	26.0	25.0	19.0	31.0	26.0	185.0	
	2.2	Publicity			19.0	17.0	15.0	14.0	12.0	19.0	15.0	111.0	**296.0**
3.0	**Local Communities Programme** (refer to Table 8.5)												
	3.1	Training			15.8	4.5	1.9	2.5	1.6	18.3	2.8	47.4	
	3.2	Cooperative				1.0		3.0		3.0		7.0	
	3.3	Assistance to Run Programme			1.0	8.0	2.1	1.3	1.2	1.3	1.2	16.1	**70.5**
Total				**232.0**	**438.8**	**219.5**	**138.0**	**598.8**	**1,115.8**	**2,484.6**	**1,557.0**		**6,784.5**

Table 11.7: Overall Budget Summary for Tourism Development in MBCA (RM ten thousands) (*continue...*)

Descriptions			Timeframe								Amount	Total Amount
			2005	2006	2007	2008	2009	2010	2011	2012		
Brought forward from previous page...			232.0	438.8	219.5	138.0	598.8	1,115.8	2,484.6	1,557.0		**6,784.5**
4.0	**Interpretation** (refer to Table 9.5)											
	4.1	Facilities		9.0	0.6	0.4	0.4	0.4	4.0	0.6	15.4	
	4.2	Trails		4.0	0.2	0.5	0.2	0.5	1.0	0.5	6.9	
	4.3	Exhibits		3.0	0.5	0.3	0.3	0.3	1.0	0.2	5.6	
	4.4	Unattended Services		2.5	5.7	10.5	5.8	5.8	10.5	5.8	46.6	**74.5**
5.0	**Infrastructure/Public Services** (refer to Table 10.4)											
	5.1	Power Supply		40.0					10.0		50.0	
	5.2	Waste Management										
	5.3	Water Treatment		10.0					5.0		15.0	
	5.4	Water Storage		10.0					5.0		15.0	
	5.5	Maintenance			1.0	1.0	1.0	2.0	1.0	1.0	7.0	**87.0**
6.0	**Administration** (refer to Table 11.6)											
	6.1	Administration and Management		38.2	36.4	33.8	35.2	35.8	41.5	40.2	261.1	
	6.2	Certification		0.5	5.0	5.0	5.0	1.5			17.0	
	6.3	Branding		0.5	0.5	2.0	2.0	5.0			10.0	**288.1**
Total (RM ten thousands)			**232.0**	**556.5**	**269.4**	**191.5**	**648.7**	**1,167.1**	**2,563.6**	**1,605.3**		**7,234.1**

12 MONITORING

12.1 INTRODUCTION

The purpose of this chapter is to provide a framework for assessing and monitoring the potential impacts and changes within MBCA and its surrounding areas using currently available best practices. It also provides mechanisms to successfully implement the programmes.

12.2 MONITORING

Monitoring is an essential component of any management process, for without monitoring, resource managers know nothing about progress towards the objectives they have been set. There are two particular aspects of monitoring tourism in MBCA :

a. Monitoring visitor impacts: Visitors to MBCA have environmental and social impacts. Periodic measurement of indicators, data on visitor impacts are collected, analysed and evaluated. Managers should then determine what action is needed to address problems.
b. Monitoring service quality: Monitoring service quality involves collecting, analysing and evaluating information about the fulfilment of the needs of visitors.

12.2.1 What to Monitor

In order to monitor, indicators should be identified early, i.e. before implementing any programme or activities. Indicators relate to issues or conditions which are influenced by some action or trend. Monitoring provides resource manager with essential information about the protection of the values for which the area was established. As the appropriateness of indicators can change over time, its suitability should be reviewed periodically.

Several points should be noted about the use of indicators to monitor tourism in MBCA :

i. It should identify **conditions** or **outputs** of tourism development (e.g. the proportion of impact by visitors) rather than **inputs** (e.g. the money spent by visitors on programme or activities);
ii. It should be descriptive rather than evaluative;
iii. It should be relatively easy to measure; and
iv. Start with few key variables for monitoring.

The World Tourism Organisation (WTO) proposed the use of selected indicators for sustainable tourism. In order to be useful to tourism sector managers and administrators, the selected indicators are demand-driven; they respond to

decision-makers' need to know; they are practical for most site. The selected core indicators are best described as **Table 12.1.**

Table 12.1: Selected Indicators for the Tourism Sector

Indicator		Specific Measures
1.	Site protection	Category of site protection according to IUCN index
2.	Stress	Visitor numbers visiting site (per annum/peak month)
3.	Use intensity	Intensity of use during peak period (persons/hectare)
4.	Social impacts	Ratio of visitors to locals (peak period and overtime)
5.	Development control	Existence of environmental review procedures or formal controls over development of site and use densities
6.	Waste management	Percentage of sewage from site receiving treatment
7.	Planning process	Existence of integrated state tourism plan for tourist destination (including tourism component)
8.	Critical ecosystems	Number of rare/endangered species (inventory)
9.	Consumer satisfaction	Level of satisfaction by visitors (questionnaire-based)
10.	Local satisfaction	Level of satisfaction by locals (questionnaire-based)
11.	Tourism contribution to local economy	Proportion of total economic activity generated by tourism only
Composite indices		
A.	Carrying capacity	Composite early warning of key factors affecting the ability of the site to support different levels of visitors
B.	Site stress	Composite measure of levels of impact on the site (its natural and cultural attributes due to tourism and other sector cumulative stresses)
C.	Attractiveness	Qualitative measure of those site attributes that make it attractive to visitors and can change over time

Source: Baud-Bovy & Lawson (1998: 10)

12.2.2 Where to Monitor

The next thing to do would be where one should monitor? Monitoring should be focused on :

i. Areas where problems are most acute, and/or where staff or visitors have indicated concerns. These are likely to include :
   - places where conditions are at the limit, or violate existing standards (e.g. a slight change in trail conditions that results in trail impacts becoming unacceptable and thus may lead to a closure);
   - places where specific and important values are threatened; and
   - places where conditions are changing rapidly.

ii. Areas where new management actions are taking place (e.g. if the management plan introduces a restrictive action, with the aim of reducing visitor numbers or modifying their behaviour, managers should consider monitoring in that area to determine how the policy is working);

iii. Areas where the effects of management are unknown (e.g. while there has been much research on the effects of recreation on soil, vegetation, and

camp site conditions, there has been little research on the effectiveness of rehabilitation techniques, and how recreation variables influence rehabilitation); and

iv. Areas where information is lacking, and a monitoring programme will provide data on visitor and protected area conditions and trends.

12.3 PROGRAMME AND ACTIVITIES

Several mechanisms are presented for monitoring of tourism and its impact in MBCA. In addition, the procedure to lodge complaints is also provided.

12.3.1 Developing Monitoring Programme

A formal monitoring plan is needed to give effect to a monitoring programme in a scientific and professional responsible way. It should be a formal exercise. **Table 12.2** shows appropriate steps for developing and implementing a tourism impact monitoring plan.

Table 12.2: Steps to Develop and Implement a Monitoring Plan

A. Planning for Monitoring
• Formation of a steering committee;
• Holding a community meeting.
B. Developing a Monitoring Programme
• Identifying impacts and indicators to be monitored (refer to Table 12.1);
• Selecting methods of measurement;
• Identifying limits or ranges of acceptable change;
• Developing an operational monitoring plan.
C. Conducting Monitoring and Applying Results
• Training staff, managers and community representatives;
• Carrying out monitoring and examining data;
• Presenting monitoring results.
D. Evaluating and Advancing Monitoring
• Evaluating the monitoring programme and conducting outreach.

Source: http://nature.org/aboutus/travel/ecotourism/resources/

Note: For a fuller introduction on monitoring, please refer to the following publications by The World Conservation Union (IUCN).

Hockings, M., Stolton, S. and Dudley, N. (2000). *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. Gland, Switzerland and Cambridge, UK: IUCN.

Hornback, K.E. and Eagles, P.F.J. (1999). *Guidelines for Public Measurement and Reporting at Parks and Protected Areas*. Gland, Switzerland and Cambridge, UK: IUCN.

a. Monitoring Visitors in MBCA

Monitoring of visitors to MBCA can provide information on use of the areas, use of specific sites, visitor characteristics and visitor outcomes. Such monitoring provides data for management, planning, resource allocation, public accountability, and interpretation and marketing (refer to **Table 12.3**).

Table 12.3: Summary of Uses of Visitor Monitoring Data

Monitoring Focus	Data Required	Main Uses of Data	Data Collection Technique
Visitor use of an area	Visitor numbers, mode of arrival, entry and exit points	• Making resource allocation decisions • Public accountability	Automated counters, guesstimates, entrance records (i.e. ticket sales, permits, etc.), manual counts, visitor books, aerial photos
Visitor profiling (characteristics)	Demographic and socio-economic attributes of visitors, reasons for visiting, attitudes, motivations, preferences, expectations, information needs	• Marketing and interpretation • Planning – management plans, planning frameworks (e.g. ROS, LAC, VIM, VAMP, VERP, TOS, TOMM) and site design	Questionnaires, telephone surveys, personal interviews, focus groups and other interactive techniques
Visitor outcomes	Satisfactions, disappointments, suggestions and comments	• Routine management, especially ameliorating impacts • Planning (as above)	
Site use by visitors	Site visited, seasonal use patterns, group size, length of stay, frequency of visits, activities undertaken	• Planning (as above) • Making resource allocation decisions • Routine management, especially ameliorating impacts	Questionnaires, telephone interviews, field observations

b. Monitoring Tools

In monitoring visitors, the primary question underlying carrying capacity should not be 'how many is too many?' but rather determining how many changes to environmental conditions are acceptable given the development objectives of MBCA. It is necessary to note that impacts cannot be avoided, but they can be managed based on established objectives or an understanding of the biophysical or social conditions desired.

There is a rich history, over the last three decades and predominantly in North America, of monitoring and reporting on the impacts of visitors on wilderness areas in protected areas. The most common approaches or frameworks are the Recreation Opportunity Spectrum (ROS) (Clark & Stankey, 1979), Limits of Acceptable Change (LAC) (Stankey *et al.*, 1985), Visitor Impact Management (VIM) (Graefe *et al.*, 1990), Visitor Activity Management Process (VAMP) (Payne & Graham, 1993) and Visitor Experience Resource Protection (VERP) (Hof & Lime, 1997). Two at least have been specifically developed for tourism - the Tourism Opportunity Spectrum (TOS) (Butler & Waldbrook, 1991) and Tourism Optimisation Management Model (TOMM) (Manidis Roberts Consultants, 1997).

camp site conditions, there has been little research on the effectiveness of rehabilitation techniques, and how recreation variables influence rehabilitation); and

iv. Areas where information is lacking, and a monitoring programme will provide data on visitor and protected area conditions and trends.

12.3 PROGRAMME AND ACTIVITIES

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• Identifying limits or ranges of acceptable change;
• Developing an operational monitoring plan.
C. Conducting Monitoring and Applying Results
• Training staff, managers and community representatives;
• Carrying out monitoring and examining data;
• Presenting monitoring results.
D. Evaluating and Advancing Monitoring
• Evaluating the monitoring programme and conducting outreach.

Source: http://nature.org/aboutus/travel/ecotourism/resources/

Note: For a fuller introduction on monitoring, please refer to the following publications by The World Conservation Union (IUCN).

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Hornback, K.E. and Eagles, P.F.J. (1999). *Guidelines for Public Measurement and Reporting at Parks and Protected Areas*. Gland, Switzerland and Cambridge, UK: IUCN.

Performance reporting, based on assessing the achievement of objectives by identifying and measuring indicators and standards, is a crucial concern within these frameworks. To date, however, none of these frameworks has been explicitly applied to the performance reporting increasingly being required in protected areas. Information on conditions can be collected using indicators as diverse as campsite area, damage to trees and amount of litter, and reported in an equally diverse number of ways, from a single, visual condition rating through to detailed quantitative measurements of more than 10 parameters (refer to **Table 12.4**).

Those involve with enforcement are recommended to the followings:

- Conduct regular trail monitoring, including boundary. During such trip, inventories are to be taken. These include observation and photographs of fallen trees or branches, animal tracks, location of flowers in bloom, damage to trails or bridges, etc. Notes to include dates, times, locations.
- Conduct community talks at villages around MBCA to brief on rules and regulations, legislation and on going efforts by MBCA; and
- Attend talks or read materials on legal matters, e.g. on wildlife and forestry.

Table 12.4: Resource Indicator Monitoring Approaches for Measuring the Impacts of Visitors

Approach	Design	Data type	Description	Advantage	Disadvantage	Examples of indicators
a. Campsite Approaches						
Photographs	Reconnaissance	Interval/ratio	Site or quadrat-based photos	Rapid	No accurate information on the indicators	Campsite area, barren core area, condition of ground cover vegetation, tree damage, exposed tree roots (as a measure of erosion), site development, amount of litter,
Condition class		Nominal/ordinal	Single descriptive rating given to each site		Single measure and associated data loss	
Multiple indicator rating	Multiple indicator	Ordinal	Rating for individual indicators summed for each site	Efficient; good overview of conditions obtained	Composite rating not statistically proper	
Multiple indicator measurement		Interval/ratio	Quantitative measurement of each indicator	Accurate, statistical analysis possible	Time-consuming, training needed	
b. Trail Approaches						
Photographs	Reconnaissance	Interval/ratio	Aerial photos	Rapid	No accurate information on the indicators	Soil erosion/trail depth, excessive trail width, excessive root exposure, multiple trails, wet soil, running water on the trail
Conditional class		Nominal/ordinal	Descriptive ratings given to trails/segment		Single measure and associated data loss	
Point sampling	Sampling	Interval/ratio	Measurement at a series of points (randomly or purposively selected)	Statistical analysis possible	Relocation of sampling points, field time	
Quadrat sampling	Sampling-based		Measurement in a series of points (randomly or purposively selected)			
Section evaluation	Census-based	Ordinal/percentage	Sectional evaluation within trails	Rapid	Definition of sector, scale dependence of results	
Problem assessment		Interval/ratio	Census of all pre-defined problems (e.g. erosion)	Provide data on impacts frequency, extent and distribution	Difficult to quantify impact problems; variability between surveyors	

Source: Moore *et al.* (2003: 358)

12.3.2 Complaint Management Systems

Complaints are usually seen as a bad thing for any destination, but this is not necessarily true. Complaints :

- give the destination important information about product performance and visitor satisfaction; and
- offer the destination an opportunity to take corrective action and recover the situation.

Complaints must not be treated on an *ad hoc* basis, but as part of a system (refer to **Figure 12.1**). If complaints are encouraged, they can be dealt with as they occur and before they become serious problems fuelled by frustration. Establishing a rapport through the initial welcome and engaging in informal conversation can be useful techniques for identifying a complaint in its infancy.

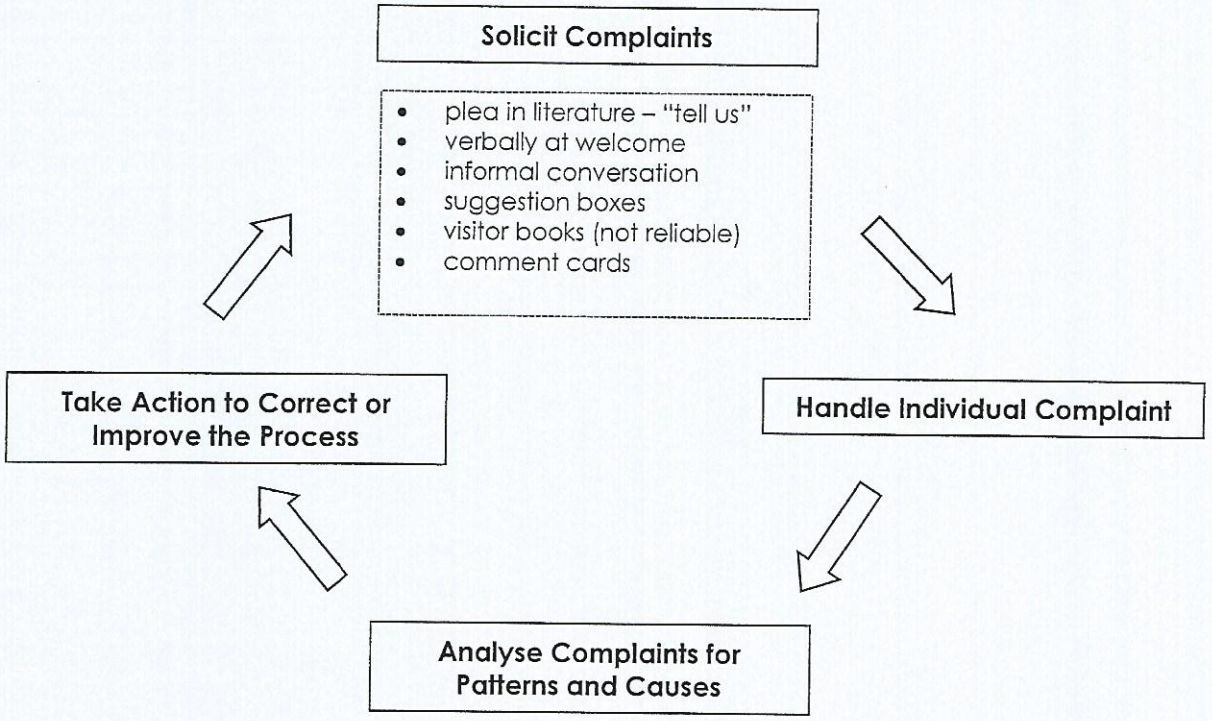

Figure 12.1: Complaint Management Systems

Staff should be trained and empowered to handle complaints themselves, rather than referring all cases to management. Practical tips are given as a list of "do's" and "don'ts" to help staff better handle complaints (see *Practical Tips*, **Table 12.5**). However, once a complaint has become a letter or formal complaint, then a different process is needed.

Table 12.5: Practical Tips for Staff Handling Complaints

DO.... • dress professionally as this sends positive signals; • remain calm and confident; • use positive body language; • establish and maintain eye contact; • observe and listen carefully-allow the visitor to speak; • apologise that the situation has happened and thank the visitor for raising the matter with you; • take responsibility for solving the problem; • ask questions to find out more information; • summarise information to check mutual understanding; • analyse the information regarding cause and behaviour; • present alternative solutions, any explanations and then agree on a solution; • carry out the agreed solution or check that it is carried out; and • check that the visitor is satisfied with the final outcome.
DON'T... • argue with the visitor; • raise your voice or shout; • blame colleagues in front of the visitor; • be aggressive; • personalise the situation; • offer excuses; and • reach conclusions before you have sufficient information.
In some instances... • DO walk and talk to the visitor at the same time maintaining eye contact-useful for removing the complainer from a public area; • DO refer the problem to management if necessary or the visitor insists; • DO take notes on incidents as a precautionary measure immediately afterwards; and • DO coax the visitor to tell you about a problem if you think they are reluctant to speak to you.

Destinations sometimes forget to manage the last impression that the visitor has on departure. Attention should be paid to the physical clues and to the personal contact. Farewells should reflect the host culture. Is a small gift appropriate? Drink or snack for the journey? Some hosts give a postcard of their establishment.

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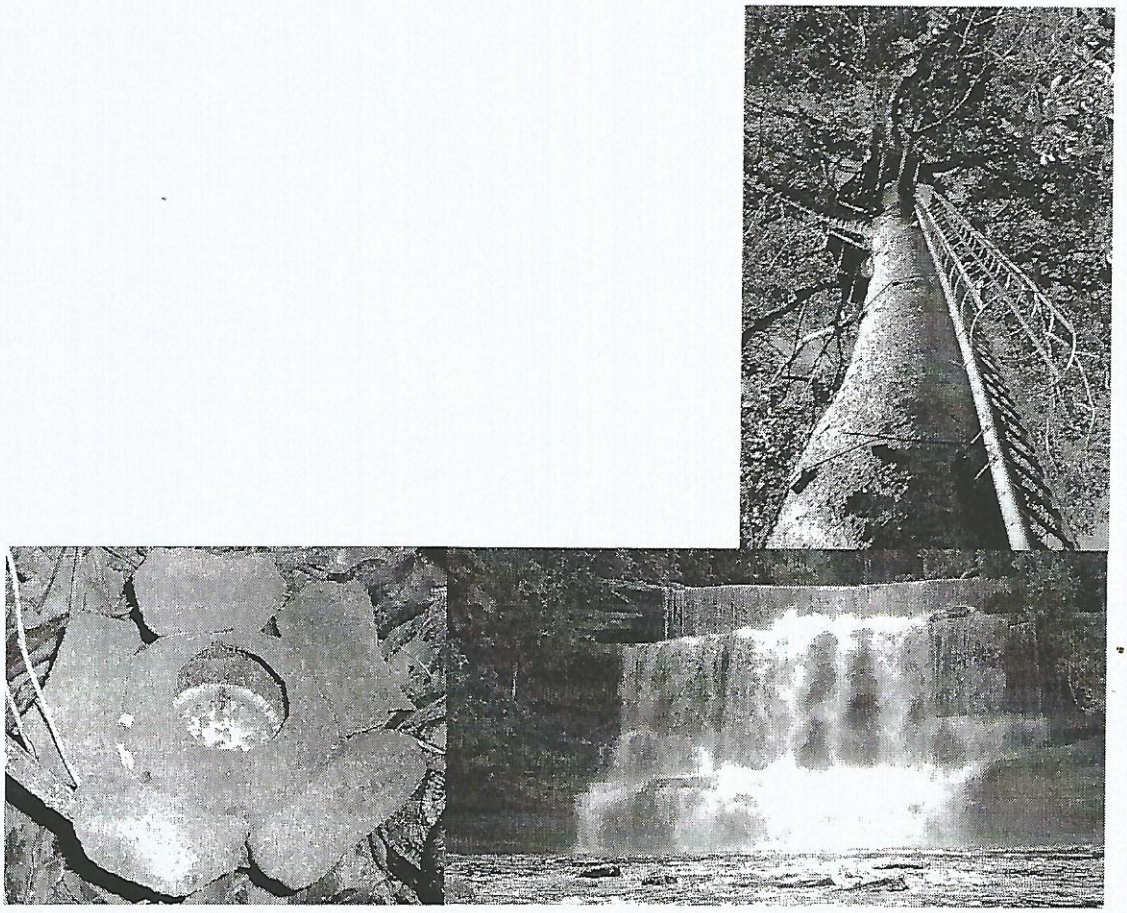

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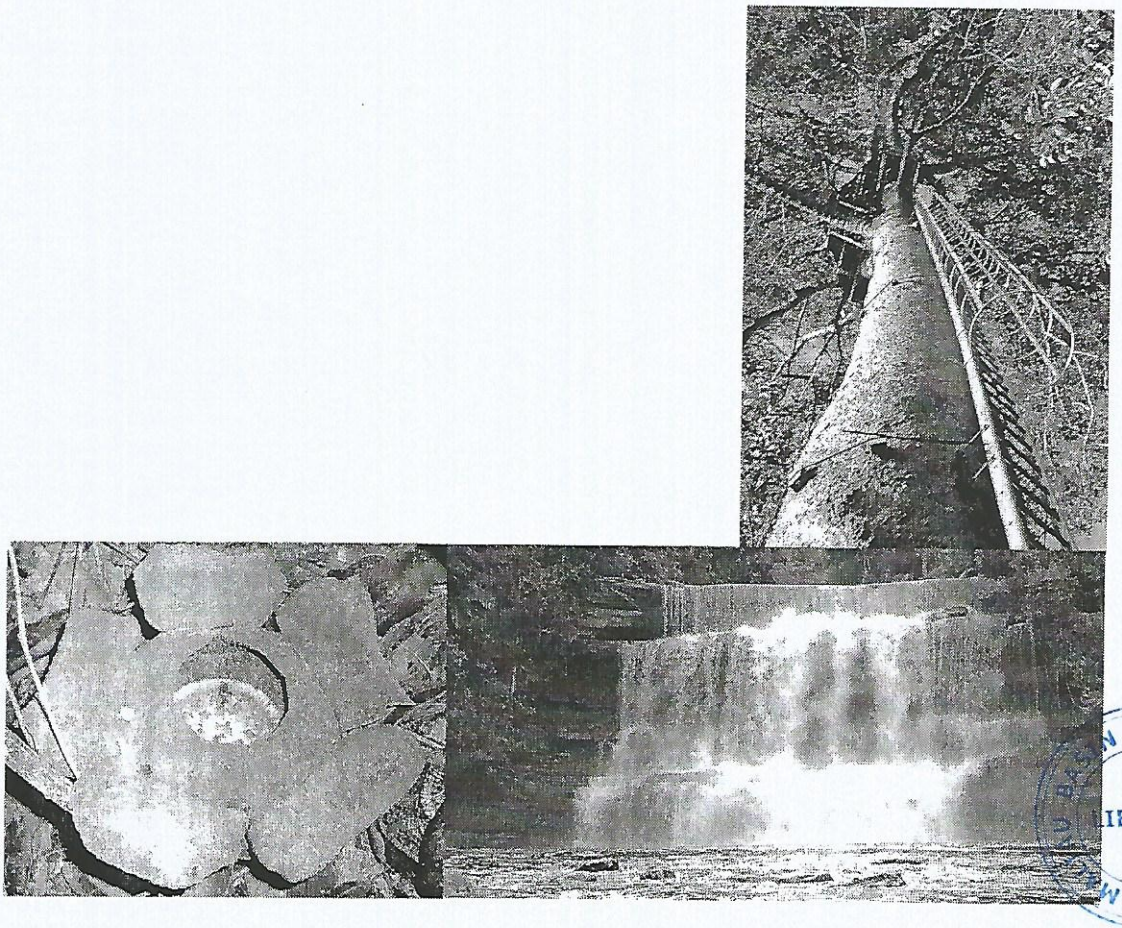
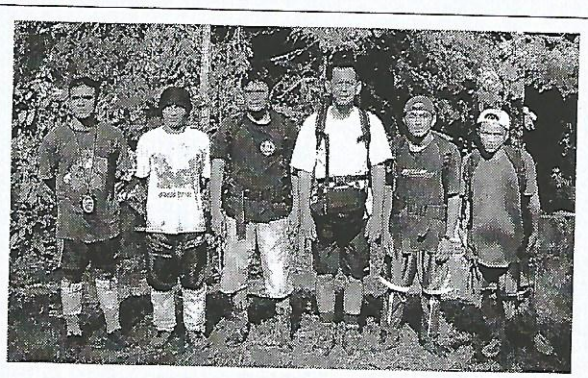
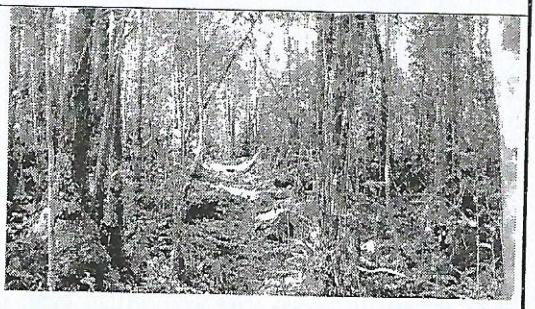
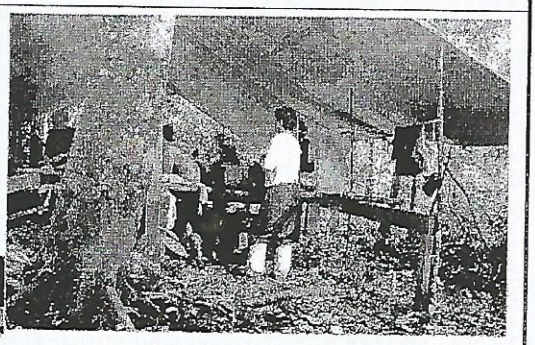
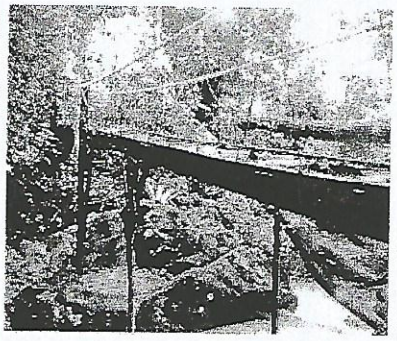
Appendices



APPENDIX A
Author's Itinerary

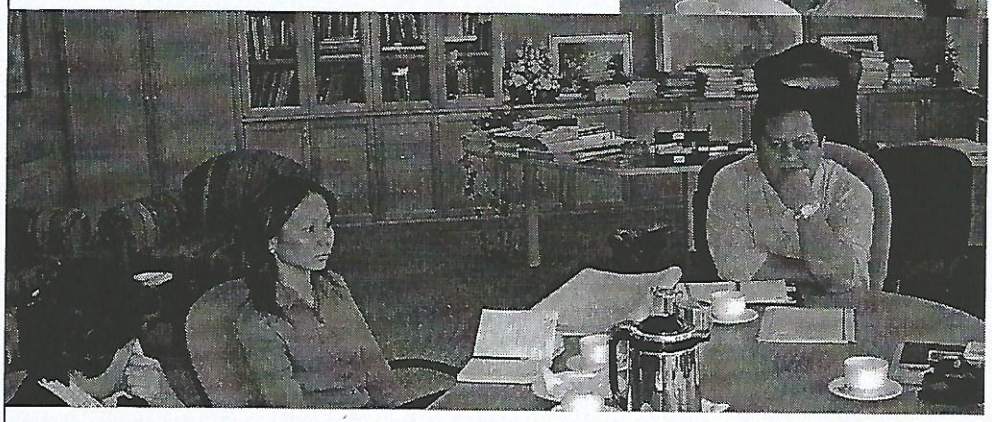
TIME	PROGRAM
Day 1: December 15 2004 (Trip to Sabah)	
0815	By Air Asia from Alor Star to KLIA
1230	By Air Asia from KLIA to Kota Kinabalu
1500 - 1830	Discussion with staff from Research & Development Division, Yayasan Sabah Group. (12th Floor, YS Building). Attended by: Dr. Waidi Sinun Ms. Sylvia Yorath Ms. Rose John Kidi Jontili Ms. Helen Patrick Mr. Albinus Ongkudon
Day 2: December 16 2004 (Trip to Maliau Basin)	
1100 1300 2030	By Malaysia Airline from Kota Kinabalu to Tawau (35 mintes) Overland by 4WD to Agathis Camp, MBCA (5 hrs) Briefing by the manager, Mr. Hamzah Tangki
Day 3: December 17 2004 (Trek to Camel Trophy Camp)	
0900 - 1425	Trek to Camel Trophy Camp. Accompanied by: Mr. Hamzah Tangki Mr. Saiful Azlan B. Jusoh Mr. Mohamad B. Sulaiman Mr. Jamil B. Kasmin Mr. Welly Frederik Tukin Initial stage rather demanding, climbing from 280 m asl to 960 m asl (2.4 km). Total distance = 7.0 km 
Day 4: December 18 2004 (Trek to Lobah Camp)	
0915 - 1330	Initially flat but undulating through heath forest. (8.0 km) Campsite still from basic structure. Interesting trail with unique flora found along the trail and great viewpoints of the basin. Water supply is a problem at campsite.   

Day 5: December 19 2004 (Trek to Seraya Camp)	
0915 - 1335	Interesting trail (8.0 km). Downhill most of the way, passing through the abandoned Bambangan Camp. River crossing (Sg. Ginseng) requiring a bridge to facilitate crossings. Saw *Rafflesia tengku-adlini* and 2 species of *Begonia* in bloom.   **Notes:** • The campsite is infested with sandflies. • Boardwalk or bridges are required in some areas due to slopes. • Water supply for camp is available.

Day 6: December 20 2004 (Trek to Belian Camp)	
0940 - 1340	Total journey of 7.0 km passing through the Repeater Hill.  

Day 7: December 21 2004 (Trip back to Kota Kinabalu)	
Morning	Spent time at the camp waiting for helicopter which never turns up due to bad weather.
1400 - 2100	Overland back to Kota Kinabalu via Sapulut, Keningau and Keningau-Kimanis Highway (under construction). 

Day 8: December 22 2004 (Meeting at YS)	
0900 - 1300	Briefing at 12th Floor, YS Building. Attended by: Dr. Waidi Sinun Ms. Sylvia Yorath Ms. Rose John Kidi Jontili Ms. Helen Patrick Ms. Darline Lim Hasegawa



APPENDIX B
List of Accommodations

Hotels and addresses		Ratings	☎	🖷	Email & Website
Keningau					
1.	**Hotel Juta** Locked Bag No. 1, 89000 Keningau, Sabah	-	087 - 337888	087 - 332888	hjuta@tm.net.my www.sabah.com.my/juta
2.	**Perkasa Hotel** P O Box 129, 89007 Keningau, Sabah	3 stars	087 - 331045	087 - 334800	phkgau@tm.net.my www.perkasahotel.com.my
3.	**Kristal Keningau Hotel**	-	087 - 338888	-	-
4.	**Tai Wah Hotel**	-	087 - 332092	-	-
Tawau					
5.	**Belmont Marco Polo** 3 Jalan Klinik, P O Box 1003, 91008 Tawau, Sabah	3 stars	089 - 777 988	089 - 763739	bmph@tm.net.my
6.	**Hotel Emas** TB 2103 North Road, 91000 Tawau, Sabah	3 stars	089 - 762000	089 - 763569	emas@teckguan.com
7.	**Tawau Hotel**	-	089 - 771100	-	-
8.	**The Reef Dive Resort** Wisma DS, No. 193-195, Jalan Bakau, 91000 Tawau, Sabah	-	089 - 770022	089 - 764659	sales@mataking.com www.mataking.com

APPENDIX C
Ecotourism Guidelines for Nature-based Tour Operators

SUMMARY OF GUIDELINES FOR NATURE TOUR OPERATORS

1. Predeparture Programs: Visitor Information and Education Guideline
Prepare travellers to minimise their negative impacts while visiting sensitive environments and cultures before departure.

- Prepare travellers for each encounter with local cultures and with native animals and plants.
- Minimise visitor impacts on the environment by offering literature, briefings, leading by example, and taking corrective actions.

2. Guiding Programs: Prevention of Cultural Impacts

- Minimise traveller impacts on local cultures by offering literature, briefings, leading by example, and taking corrective actions.
- Use adequate leadership, and maintain small enough groups to ensure minimum group impact on destinations. Avoid areas that are undermanaged and overvisited.
- Ensure managers, staff and contract employees know and participate in all aspects of company policy to prevent impacts on the environment and local cultures.
- Give managers, staff and contract employees' access to programs that will upgrade their ability to communicate with and manage clients in sensitive natural and cultural settings.
- Be a contributor to the conservation of the regions being visited.
- Provide competitive, local employment in all aspects of business operations.
- Offer site-sensitive accommodations that are not wasteful of local resources or destructive to the environment that provide ample opportunity for learning about the environment and sensitive interchange with local communities.

ECOTOURISM GUIDELINES FOR NATURE TOUR OPERATORS: MAIN DOCUMENT

A. PREDEPARTURE PROGRAMS: VISITOR INFORMATION AND EDUCATION

Guideline:
Prepare travellers to minimise their negative impacts while visiting sensitive environments and :

- Offer visitors the educational materials they need to learn about the places and people to be visited and introduce the importance of contributing to the conservation of places being visited.
- Educate visitors about the full range of natural and cultural phenomenon to be observed.
- Educate visitors to consider the effects of their visit in advance and to modify their behaviour while travelling, with the objective of minimizing impacts.
- Provide introductory information on the people and ecosystems to be visited in predeparture packages. Stress the importance of reading pre-departure information, such as selected bibliographies, and review additional resources for each destination.
- Keep information objective and well-grounded using examples of phenomenon visitors might encounter.
- Provide general travel ethics addressing standards for behaviour in natural areas and with local cultures.
- Provide information on the equipment, clothing and personal supplies suitable to the regions being visited.
- Warn against bringing disposable goods that contribute to the solid waste burden in the region.

- Provide information on products to avoid that are illegally traded.
- Provide information, as required, on avoiding the accidental transport of foreign, exotic species into isolated ecosystems being visited.

Visitor Benefits:

- Visitor is attuned to the full range of opportunities for viewing wildlife and learning about different cultures.
- Awareness of personal responsibility to minimise impacts on the environment and local cultures before departure.
- Visitor has proper gear and clothing for environments and cultures to be visited.

B. GUIDING PROGRAMS: GENERAL PRINCIPLES OF GUIDING TOURS

Guideline:
Prepare travellers for each encounter with local cultures and with native animals and plants.

Objectives:

- Pave the way for reciprocal sensitivity between cultures by teaching tourists to be unobtrusive while they are encountering environments and cultures.
- Provide visitors with the opportunity to learn more about the social and political circumstances of the region being visited.
- Provide visitors with the opportunity to learn more about local environmental problems and conservation efforts.

Techniques:

- Provide quality orientation and enough leaders to manage the group according to the sensitivity of the environment visited.
- Give quality interpretation at all times; explain local cultures and describe natural history. Encourage interaction with local people while overseeing contact to avoid cultural errors.
- Conduct briefings before each stop, including behaviours to avoid, restricted practices and zones, special alerts for fragile and endangered species, specific distances to maintain with local wildlife, and local regulations.
- Use of time on road and in cities for educational discussions of all kinds including balanced discussions of local issues.

Visitor Benefits:

- Awareness of how to encounter cultures and environment with minimum negative impact.
- Insight into the visitor's own role and potential contribution to local conservation and sustainable economic development efforts.

C. GUIDING POGRAMS: PREVENTION OF ENVIRONMENTAL IMPACTS

Guideline:
Minimise visitor impacts on the environment by offering literature, briefings, leading by example, and taking corrective actions.

Objectives:

- Help visitors to minimise their negative impacts by enhancing their understanding of the fragility of the environment.

Company guides should pursue the following procedures:
Provide a set of environmental guidelines, created by the company, specific to the area being visited.

- Obtain and distribute available guidelines for each natural area visited.
- Allow protected area staff to introduce guidelines if possible.
- Brief visitors on proper behaviour - on trails, in campsites, around wild animals, around fragile plants - and with trash, with human waste, with fires, and with soaps.
- Advise all travellers on the level of difficulty of each excursion to prevent damage to the environment caused by lack of experience or ability to manoeuvre in unfamiliar terrain.

- Discourage unrealistic expectations of observing rare wildlife and plants by interpreting all aspects of the ecosystem.
- Advise against collecting souvenirs from natural areas, such as feathers, bones & shells, unless it is specifically condoned by local authorities.
- Advise against purchasing specific crafts that are produced from threatened natural resources.

Visitor Benefits:

- Learns how to travel without leaving footprints.
- Gains a greater understanding of travel's impact on the environment.
- Is informed of the rules and regulations of natural areas and the need to follow them.

D. GUIDING PROGRAMS: PREVENTION OF CULTURAL IMPACTS

Guideline:
Minimise traveller impact on local cultures by offering literature, briefings, leading by example, and taking corrective actions.

Objectives:

- Protect the integrity of the cultures being visited by minimising visitor contribution to acculturation and the decline of local values. Enhance visitor understanding of local cultures but avoid improper intrusions into the private lives of others.

Techniques:

- Company guides should be aware of the following procedures:
- Interpret local cultural values and history of local cultures.
- Provide a set of cultural guidelines created by the company, specific to the area being visited. Where available, obtain and distribute guidelines written by local communities.
- Advise visitors to accept differences, adopt local customs, and be unobtrusive. Discuss appropriate behaviour when photographing.
- Discuss appropriate behaviour when purchasing goods, tipping, and responding to begging.

Visitor Benefits:

- A better understanding of local values and cultures and how to behave with local peoples to minimise cultural impacts.
- The ability to look, listen and learn from others without intruding.

E. MONITORING PROGRAMS: PREVENTION OF ACCUMULATED IMPACTS OF TOURISM

Guideline:
Use adequate leadership, and maintain small enough groups to ensure minimum group impact on destinations. Avoid areas that are undermanaged and overvisited.

Objectives:

- Diminish accumulated effects of tourism on sensitive sites.
- Avoid overloading local visitor management capabilities if there are inadequate funds and staff to manage visitors in sensitive sites.
- Contribute to an effort to disperse tourism, and lighten the load on popular destinations during peak seasons.
- Recognise sites, in advance, that are inappropriate for tourism, or need assistance with existing damage.

Techniques:

- Be sensitive to total number of groups visiting sites simultaneously. Informally census the number of groups encountered on trails or roads within protected areas and keep track of sites with rapid increases. Notify authorities or landowners if the number of groups is growing rapidly.
- Monitor negative environmental impacts, including trail erosion, improper waste dumping, littering, water pollution, species harassment, illegal collecting of plants or animals, feeding of wildlife, or wild

animals that have become abnormally tame or aggressive. Notify authorities or land owners both verbally and, if need be, in writing.

- Assist land managers in monitoring key, indicator species, or offer logistical assistance to researchers working on tourism impacts.
- Design itineraries and promotions to avoid overselling popular sites, particularly those that are inadequately managed for visitation during peak seasons.
- Watch for accumulated cultural impact and work to prevent or buffer them. Indicators include; inflated prices for goods in communities; hostility towards tourists from local communities; black markets, drug dealing and prostitution catering to the tourist industry.

Visitor Benefits:

- Avoids contributing to the destruction of sites visited.
- Learns to recognise the negative impacts of tourism and the importance of notifying the authorities when this occurs.
- Learns to avoid overloading popular sites, by making trips in off-season or avoiding peak visitation hours.
- Learns to recognise cultural impact and avoids contributing to the decline of local values.

F. MANAGEMENT PROGRAMS: PREVENTION OF NATURE TOUR COMPANY IMPACTS

Guideline:
Ensure managers, staff and contract employees know and participate in all aspects of company policy to prevent impacts on the environment and local cultures.

Objectives:

- Make the nature tour company as environmentally and culturally sensitive as possible, both in the office and in the field.

Techniques:

- Establish an environmental code and objectives manual for the company.
- Confidence in the personnel who are leading the organization and the tours.

G. MANAGEMENT PROGRAMS: TRAINING

Guideline:
Give managers, staff and contract employees' access to programs that will upgrade their ability to communicate with and manage clients in sensitive natural and cultural settings.

Objectives:

- Offer meaningful opportunities for staff and contract employees to work within a sustainable economy.

Techniques:

- Establish clear guidelines for staff regarding opportunities and company support available for training, via internal training programs (natural and cultural history) and via training programs available locally (language skills and first aid, accounting, mechanics).
- Establish an operator's consortium for training. (Establish a relationship with a local educational facility and work to integrate needed training components into the curriculum, and work with nongovernmental organizations to establish an ecotourism training program.

Visitor Benefits:

- Opportunity to contribute to a local sustainable economy that offers local people opportunities to be employed in increasingly responsible positions.

H. MANAGEMENT PROGRAMS: CONSERVATION CONTRIBUTION PROGRAMS

Guideline:
Be a contributor to the conservation of the regions being visited.

Objectives:

- Put tourism-generated revenues into the hands of local environmental organisations and protected area management agencies for conservation initiatives.

- Ensure that tourism revenues cover the costs for the management of tourism on wild lands and protected areas.
- Help parks and protected areas generate revenue, thereby providing economic impetus to a conservation agenda on the national level in destination countries.

Techniques:

- Provide corporate contributions to local non-profit conservation initiatives and protected areas through direct corporate donations, partnerships, technical assistance, education programs, publicity, facilitation, direct staff involvement, and becoming involved in joint initiatives.*
- Facilitate visitor contributions to local conservation initiatives during the trip by: providing literature on projects in the regions being visited and guidelines for in-kind contributions; arranging briefings and visits to local projects with project staff; or offering opportunities for visitors to volunteer.
- Facilitate visitor contributions to local conservation initiatives after the trip by: sending follow-up mailings to clients with local nonprofit membership literature, brief descriptions of projects that need assistance, upcoming opportunities to do volunteer services, or opportunities to work at home by being an ambassador or fund raiser or organizer for local projects.*
- Encourage writing to government and corporate organizations whose policies are damaging to the environment or local cultures in the areas visited by providing addresses and contact names.

**This may not apply to non-profit organisations running tours*

Visitor Benefits:

- A better understanding of how tourism can be a net contributor to the conservation of cultures and environment visited.
- A chance to be a part of the effort to conserve a beloved place on a long-term basis and preserve biological diversity and cultural heritage worldwide.

I. MANAGEMENT PROGRAMS: LOCAL EMPLOYMENT & JOBS PROGRAMS

Objectives:

- Provide competitive, local employment in all aspects of business operations.
- Make ecotourism beneficial to local communities.
- Provide local people access to jobs that are not destructive to the environment.
- Provide local people with a full range of opportunities beyond the service employment sector.

Techniques:

- Hire locally-owned businesses including transport (vehicle and boat rental services), accommodations (hotels, lodges, camps), and restaurants.
- Buy local supplies from food and craft vendors and avoid all products made from endangered or threatened species.
- Hire local office and field staff. Pay competitive wages, above minimum wage for the region, and offer acceptable benefits.
- Contribute to community enterprises and development efforts that support a wide variety of local residents, with special sensitivity to indigenous groups.

Visitor Benefits:

- Opportunity to contribute to a sustainable market economy, e.g. to provide job opportunities that are not destructive to the environment.
- Awareness that the choices visitors make affects the lives and livelihoods of others.

J. LOCAL ACCOMMODATIONS CHECKLIST

- Offer site-sensitive accommodations that do not waste local resources or destroy the environment and that provide ample opportunity for learning about the environment and sensitive interchange with local communities.
- Ensure all aspects of the visitor's experience are in harmony with the natural and cultural environment.
- Review the following check list of considerations when booking new accommodations.

- Select accommodations that are in compliance with environmental regulations.
- Review facility's level of destruction to natural surroundings.
- Consider facilities efforts to maintain a scale in keeping with the local environment and to reflect national or local cultural design motifs in architecture and interior design.
- Review facility's use of energy saving devices and renewable energy resources.
- Review facility's treatment of solid and organic waste. Ensure that solid waste is safely disposed of and that recycling programs are in place where possible. Ensure that all waste products are treated to prevent effects on natural resources.
- Determine if restaurant is composting and using other techniques to reduce waste such as avoiding paper products and styrofoam.
- Determine if facility is offering meaningful opportunities for locals.
- Check into training programs offered by lodge.
- Review opportunities for locals to have sensitive cultural interchange, on their own terms, with visitors.
- Look for locally produced craft and food items available for sale on the premises or used in facility restaurants, and ensure that all products from threatened natural resources are avoided.
- Check for the interpretive/educational materials inside the facility that are available to guests. Look for field guides, videos, books, pamphlets, and check lists of species found locally.
- Check for availability of interpretive services outside, such as self-guided trails and guide services.
- Check for the facility's sensitivity to interpretive opportunities; i.e. how well the facility has interpreted its own land's natural features and natural resources, or the local cultural backgrounds and perspectives of its own staff, for visitors.
- Ask if owners contribute to conservation or community development efforts with financial, technical or logistical support.
- Avoid sites that bait animals, or that keep exotic species on the property that were trapped in the wild, especially threatened or endangered species.

Visitor Benefits:

- An appreciation of the possibilities for sustainable living.
- Greater sensitivity to the role of the resort in a community, its impact and contribution to locals, and how to select resorts that are environmentally and socially sensitive.
- Better opportunities for sensitive cultural interchange and enlightening field trips accompanied by staff or representatives of local communities.

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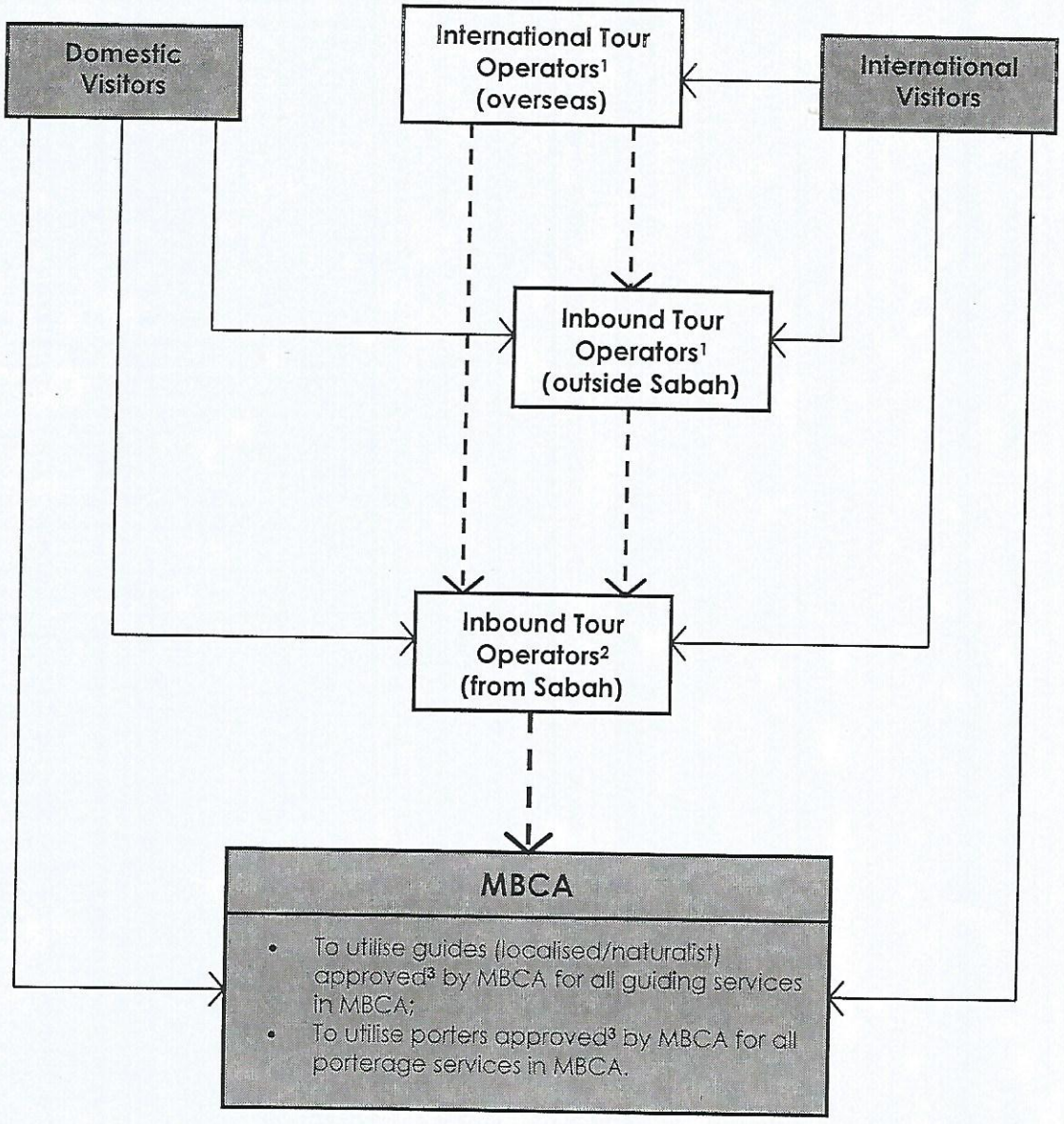
APPENDIX D
Framework for Tour Operators to Conduct Businesses into MBCA



Notes:

[1]International tour operators & inbound tour operators (from outside Sabah) are required to utilise the services of approved inbound tour operators (from Sabah) (refer note below).

[2]only inbound tour operators approved by MBCA. These operators are those that:

- had participated a fam trip or undergo any other programmes conducted by MBCA;
- are licensed by the Ministry of Tourism, Malaysia (MOCAT;
- utilised the service of licensed tour guides (by MOCAT);
- use licensed tour buses (*bas persiaran*) (by MOCAT); and
- had entered into agreement with MBCA on the protocol of conducting businesses in MBCA (Terms & Conditions of Tour Services in MBCA).

[3]approved here means the following:

- those that had undergone formal training with MBCA, i.e. guides (**Section 5.5**) and porters (**Section 8.3.2**).

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