KEEPING OUR ISLAND CLEAN

PUBLIC PARTICIPATION IN CLEANLINESS AND SOLID WASTE MANAGEMENT ON PULAU KAPAS

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Foreword

The islands along the east coast of Malaysia are important assets for all Malaysians. They provide us with marvellous venues for nature outings and relaxation and they are major sources of income for many people as important tourist destinations. It is therefore, an important responsibility for all of us – the authorities, the resort and tour operators and all the visitors to the islands to protect the beauty of them. Environmental issues that prevail on almost all the islands are ineffective sewage treatment, littering on land as well as in the sea, improper waste disposal, illegal fishing, degradation of the reef and poorly planned tourism development. These threats to the islands are fast increasing with the increasing number of visitors. As a measure to protect and conserve the fragile marine ecosystems, many of them have been gazetted as marine parks and placed under the jurisdiction of the Department of Marine Parks. Pulau Kapas is among the islands designated as a Marine Park. However, land-based activities still fall under the jurisdiction of Majlis Daerah Marang (MDM). These activities include waste collection and disposal, licensing of operating resorts and maintenance of public amenities such as jetty and walkways along the beach. The council is aware of its responsibility and has appointed a waste contractor to provide beach cleansing and solid waste collection on Pulau Kapas from March to November 2009. However, the council cannot keep the island pristine without strong support and assistance from the resorts, tour operators and visitors.

This publication describes a programme carried out by MDM to increase public participation in solid waste management on Pulau Kapas. The programme focused on curbing the littering behaviour amongst the resort guests and day trippers through the ‘Friends of Pulau Kapas’ campaign and on proper managing of bulky waste by the resorts to avoid the interior of the island to become an unpleasant dumpsite. In addition, MDM is further committed to improve the waste management services strengthening requirements in waste services contracts and in resort business licenses. The programme has been financed by the Danish International Development Assistance (DANIDA) Solid Waste Community Initiatives Fund.

It is our hope that other Local Authorities with responsibility for islands, resorts, non-governmental organisations (NGOs) and individuals may be able to use the experiences learnt from this project to work together to preserve the beauty of all the islands along our coasts.

I would like to extend our deepest thanks and appreciations to everyone who has supported this project, especially DANIDA, Ministry of Housing and Local Government (MHLG), Malaysian Nature Society Terengganu Branch, Trevicosta (Terengganu Riverine and Coastal Authority), Aqua-Sport Diving Service, Civil Defense Department, the resorts, the schools participating in the campaigns, the staff of MDM, recyclers and visitors. Without their commitment, enthusiasm and efforts, the programme would not have been successful.

En.Ibrahim bin Mohamad
Yang Dipertua
Majlis Daerah Marang
Background

Pulau Kapas is a picturesque tropical island located less than 5km or only 15 minutes by speedboat from the Marang Jetty, Terengganu. Due to its accessibility from the mainland, it has been a popular destination for local day-trippers for many years and in recent years, it has further become increasingly popular among scuba-divers and international holiday-makers. With its white sandy beaches, plenty of accommodation opportunities and good diving opportunities, it is an ideal location for exploring the rich marine life surrounding the islands of the region.

Whilst an increasing amount of visitors has resulted in positive economic development for the local communities, the fast development of facilities such as small resorts has also put extra strain on the natural resources that is the very reason for visitors to come. There are currently 7 resorts operating in Pulau Kapas and one on neighbouring Pulau Gemia with a combined capacity of more than 200 rooms and employing more than 100 staff. At this capacity, the island can accommodate up to 400 people, excluding the huge amount of day-trippers, imposing a significant pressure on the small island with a total land area of only 150 hectares.

Both the large numbers of people that visit Pulau Kapas and the tourism staff produce large amounts of waste that require proper management and disposal. Despite the environmental concerns emerging in the wake of tourism development, issues pertaining to solid waste disposal and untreated sewage from resorts prevail in all the marine parks of the region such as at Pulau Perhentian, Pulau Redang and Pulau Tioman. Pulau Kapas is now experiencing a similar situation albeit still at a lesser magnitude than the other islands.

Before the project was implemented, an interview survey among the resort owners on the island was undertaken to establish the main solid waste management (SWM) shortfalls. The survey revealed the following main concerns:

- Bulky waste accumulation on the island
- Beach-littering
- Lack of environmental awareness
- Limited recycling practices and lack of an environmental “code-of-conduct” for local tour operators

Currently, SWM services on Pulau Kapas include collection of domestic waste from resorts and beach-sweeping in front of the chalets and resorts which are the main areas subjected to littering from visitors but leaving out more secluded beaches. Resort owners and boat operators, however, complained that scheduled waste collection and beach sweeping even at the main areas were sometimes irregular. In addition, the solid waste collection services are stopped for 4 months during the monsoon season from December to March, during which period there are many complaints on indiscriminate waste disposal by the resorts as well as visitors.
Whereas domestic waste collection, to some extent, is taken care of by the Local Authority; disposal of bulky waste from the resorts, deriving from among others, renovation works and refurbishment and replacement of furniture and appliances is the responsibility of the resort owners. Unfortunately, many operators do not possess a boat of appropriate size to transport bulky waste to the mainland and the high cost of renting boats for transferring bulky waste to the mainland often results in many resort operators storing bulky waste within their premises or in the interior of the island. Similar problems with bulky waste arise in the event of resort operators discontinuing their businesses, leaving their premises unattended. Apart from the domestic waste, bulky waste is therefore, a significant management challenge for Pulau Kapas.
Formulating the “Public Participation in Solid Waste Management on Pulau Kapas” programme

With a growing influx of tourists to the island, the Local Authority must be prepared for the increased demand for proper waste management. Due to the sensitivity of Pulau Kapas’ environment, there was a need to address the current shortcomings and embrace the future challenges. However, the Local Authority would have no chance to meet these challenges without the active participation and support from the resort operators, tourists and other stakeholders generating waste on the island. Change of perception and attitude among these stakeholders therefore, became a major pre-condition for any solution to be successful.

To address these challenges, Majlis Daerah Marang (MDM) proposed to carry out a programme titled “Public Participation in Solid Waste Management on Pulau Kapas”. The proposal aimed at educating and empowering the local communities to manage the solid waste generated by them properly by increasing the level of awareness of the involved stakeholders and at the same time, informing them about proper ways of handling and disposing of solid waste.

In May 2008, MDM applied to the Department of National Solid Waste Management (DNSWM) / Danish International Development Assistance (DANIDA) Solid Waste Management Component Community Initiatives and Educational Fund for financial support for this programme. The proposal was approved in June 2008 with a total budget of RM 280,000. The programme was undertaken in the period of August 2008 – August 2009 but was later, extended to December 2009.

The objectives of the programme were:

Objective 1:
To ensure that all stakeholders - visitors as well as operators on the island - participate in creating a clean island for all and adhere to the established system for SWM

Objective 2:
To ensure that a functional bulky waste management system is established for the island and that all stakeholders participate and adhere to the system

Objective 3:
To strengthen the regulatory and contractual requirements imposed by MDM on the waste collection contractors and the waste generators (the resorts) to ensure that a functional domestic waste collection and disposal system is established for the island
The focus areas to address Objective 1 were:
• Reduce littering behaviour amongst resort guests and day-trippers
• Promote good practices for recreational activities among tourist operators

The focus areas to address Objective 2 were:
• Ensure regular collection and removal of bulky waste from the island
• Establish an appropriate site for temporary storage of bulky waste until transfer from the island
• Remove existing bulky waste already accumulated on Pulau Kapas
• Clarify the roles and responsibilities of resorts, contractors and the authorities in relation to collection, storage, transfer and disposal of bulky waste

The focus areas to address Objective 3 were:
• Improve the Terms of Reference (ToR) for waste services contracts between MDM and the waste contractor
• Strengthen the approval conditions for obtaining annual business permit / licensing for resorts to include proper waste management practices
• Monitor the compliance with requirements and conditions issued by MDM
Implementation

To supervise and facilitate programme implementation, a task force chaired by the Mayor of MDM including the representatives from MDM, Malaysian Nature Society Terengganu branch (MNS-TB), resorts and boat operators and teacher representatives from Environmental Clubs of selected schools in MDM (Sekolah Menengah Kebangsaan Merchang and Sekolah Menengah Kebangsaan Seri Serating) was established. MNS-TB was appointed as the RE for the programme, charged with daily project administration, organisation and implementation of the programme activities.

At the commencement of programme, the task force undertook an awareness survey to gauge resort operators and visitors’ opinions on the current waste situation on Pulau Kapas and at the end of the project period, a post-project survey was performed to determine if there were any improvement in attitude and awareness towards waste management and the marine environment among the resort operators and visitors.

- Implementing waste disposal awareness on Pulau Kapas
  
  **Awareness and educational activities**
  “Friends of Pulau Kapas Campaign” launched by Y.B. Hj Ramlan bin Ali, EXCO for Department of Housing and Local Government on the 14th March 2009

  **Production of educational and awareness material**
  Posters, brochures, stickers, signage, video, "Gift for Waste" bag, recyclable mesh trash-bags

  **Dissemination of educational and awareness material**
  Ticket counters, boats, bins, resort lobbies, jetty, strategic locations on island

  **Kapas Environmental Ambassador programme for resort /boat/operators**
  Tasks on marine environment, impacts of waste, experiences from other resorts in SWM on islands and the roles which they play

- Practical Activities
  
  **Stakeholders’ Engagement**
  Nature clubs, divers, MDM, TREVICOSTA, volunteers from schools and universities

- Beach and Reef Clean-up

- Visitors and tourists

- Operational and functional SWM on Pulau Kapas = Clean Island

- Implementation process of educational / awareness activities and practical clean-up activities
“Friends of Pulau Kapas” campaign

To address the first objective, i.e. changing the current littering behaviour and promoting “good practices” among the stakeholders, the task force decided to launch the “Friends of Pulau Kapas” campaign. The campaign consisted of 10 activity areas:

1) Developing a code-of-practice for visitors of the island
2) Development of educational, awareness and informative material
3) Launching event for the “Friends of Pulau Kapas” campaign
4) Open day event for resort operators
5) Beach clean-up
6) Reef clean-up
7) “Gift for Waste” programme
8) Appointing “Ambassadors of Pulau Kapas” and empowering them through educational talks
9) Production of a colouring book for children on solid waste and the marine environment
10) Production of a 15-minute educational video on the impact of improper waste management on marine life and environment

Developing a code-of-practice for recreational activities on the island

The task force realised that an important pre-condition for improving the behaviour of visitors to the island was to develop a code-of-practice for the visitors and subsequently, establish a comprehensive awareness campaign to make visitors adhere to such practices.

Subsequently, the code-of-practice was developed by MDM and the Responsible Entity (RE). After discussion in the task force, the code-of-practice was approved and the messages were printed in a folder and mini-poster.
The folder titled “Code-of-practice for Recreational Activities at Pulau Kapas” was printed in both English and Bahasa Melayu. 1,000 copies were produced for each language. The main subjects for the code-of-practice folder were snorkelling, scuba-diving, boating, picnicking and camping. Visitors who wish to snorkel in the island were reminded of environmental protection measures such as avoid causing disturbance to the marine lives, be it corals or turtles. When boating, visitors should navigate their boats properly to avoid being in contact with, and thus damaging, the corals, especially during low tide and also to avoid anchoring over corals. They were also reminded not to fish within 2 nautical miles off the marine park area. Visitors who plan to picnic or camp around the area were reminded to always keep the area clean by avoiding littering and burning of waste and by using the garbage bins provided.
The mini-poster titled “Aktiviti Rekreasi-Kod Praktikal” focused broadly on environmental issues, highlighting forest activities, snorkelling, diving, camping and usage of water vehicles.
**Awareness, education and informative material**

The code-of-practice was then, included in a massive information campaign, targeting the visitors.

A number of signages were developed and deployed at strategic locations where visitors would likely see them at least once during their trip.

A poster was developed and deployed at strategic locations. The posters were also distributed to schools from where the students often visited the island. The posters explain on the impact on the marine environment from dumping waste such as plastic bags, food wrappers and containers, cigarette butts, old fishing nets, fishing lines and robes into the sea. In addition, the poster also listed some steps the individuals can take to stop creating the marine debris, including:

- Using the garbage bins provided
- Recycling of paper, cans and bottles
- Bringing food wrappers and cigarette butts back to the shore when boating
- Bringing own useable food containers
- Bringing reusable bags
Sedikit Sedikit, 
Lama-lama Jadi Bukit.....

Little drops of water makes the mighty ocean.....

Please DISPOSE WASTE IN BINS and NOT everywhere, 
STOP NOW before it is too late!

ADVERSE EFFECTS OF SOLID WASTE 
ON MARINE ENVIRONMENT

Plastic bags and food wrappers & containers
• Non-biodegradable plastic bags can last in the environment for 20 – 30 years
• Turtles mistake floating plastic bags as jellyfish and eat them. This will clog their digestive system and they often choke to death.
• Visually unattractive

Cigarette butts
• Takes up to 5 years to break down in seawater
• Toxic chemicals (eg. lead and cadmium) trapped in the cigarette filter leach out and pollute the seawater
• Birds and aquatic animals mistake the butts as food & this leads to digestive problems and death.

Old fishing nets, fishing lines and ropes
• kills turtles when they become entangled in them
• Snarl boat propellers
• When moved around by ocean currents, these items scrape, smother and break the corals reefs

Things you can do to stop marine debris:
• Put trash in dustbins provided
• Recycle cans, bottles and newspapers
• Bring your food wrappers, cigarette butts back to shore when boating
• Bring along reusable food containers for picnics instead of using disposables.
• Take your own reusable bags to reduce usage of plastic bags
• Put cigarette butts in ashtrays & bins, not on walkway or beaches.

*Mini poster*
The following awareness and informative material were prepared and placed:

**Arrival at mainland jetty in Marang**
- Signage displaying information on the campaign and on the responsibility of visitors to keep Pulau Kapas clean, highlighting impacts of improper waste management on marine life, including photos of turtles strangulated by swallowing plastic bags, dirty beaches littered with disposable diapers, cigarette butts and other wastes and information on the long duration required for plastic to disintegrate.

**At the ticketing counters at Marang jetty**
- The poster titled “Code-of-practice for Recreational Activities at Pulau Kapas” was displayed on the wall, introducing the campaign, the environmental concerns and the developed code-of-practice for recreational activities.
- A rubber stamp with a reminder to visitors to keep Pulau Kapas clean were produced and used for stamping every boat ticket and tourism brochure handed over at the ticketing counters.

**At the Pulau Kapas jetty**
- Large signage with a reminder to tourists on proper disposal of waste and mapping where garbage bins were located on the island.

**At the resort reception areas, chalets and restaurants**
- Mini-poster titled “Aktiviti Rekreasi-Kod Praktikal” with code-of-practice for recreational activities was framed and displayed on the walls.
On the beaches

- Large signages with reminders on proper disposal of waste
- Coloured stickers on garbage bins with message of “Please Use Me”

At the public campsites

- Signages at the 2 camp sites on the island with messages on responsible camping practices with a garbage bin placed alongside the signages

At the Pulau Kapas jetty on the way back to Marang

- Signage reminding visitors / tourist if they have properly disposed of their waste

*“Gunakan Saya” or “Please Use Me” sticker on one of the many bins deployed on Pulau Kapas*
Launching of “Friends of Pulau Kapas” campaign

A large-scale launching event for the campaign was organised with the aim to involve a wider range of stakeholders, including the resort and boat operators in the campaign. The launch of the “Friends of Pulau Kapas” campaign was held on 14th March 2009 at Pulau Kapas Resort. The chairman for the Executive Committee (EXCO) of the Ministry of Housing and Local Government, Terengganu, Y.B. Haji Ramlan bin Ali has officially launched the campaign. The Mayor of MDM, Yang Di-Pertua En. Elias bin Nik and a representative from DNSWM gave additional speeches. The launching was attended by approximately 160 people, including the students involved in a parallel waste audit programme for schools in MDM, volunteers from Universiti Malaysia Terengganu (UMT), local resort and boat operators and guests from resorts at Pulau Kapas.

In conjunction with the launch, the following activities were undertaken:

- **Beach clean-up** – This activity took place with the participation of approximately 60 volunteers, consisting primarily of the participating school children and university students together with MDM staff.

- **Colouring competition** – This activity was held for 30 primary school students and 30 secondary school students. The competition was based on a drawing printed on paper in outline format which the participants had to colour.
• Talks for the resort and boat operators on the effect of poor waste management on the biodiversity. The talks were conducted by lecturers from UMT as a part of the “Ambassadors of Pulau Kapas” campaign.

• Gift-for-Waste activities where visitors were given free mystery gifts (key chains) when they disposed of waste at designated bins.

• Some of the 160 participants at the launching ceremony

Open day for resort operators

An open day event for resort operators was held on 20th August 2009 to enhance the dialogue between the resort operators and the authorities. MDM, Department of Marine Parks, TREVICOSTA (Terengganu Riverine and Coastal Authority), Solid Waste and Public Cleansing Management Corporation (PPSPPA) and the waste collection company, Alam Flora Sdn. Bhd. have participated in the event. Five resorts from Pulau Kapas and Pulau Gemia have attended the dialogue which was chaired by the Director of TREVICOSTA. The event was organised to gather the concerns and feedbacks of the resort operators on environment and safety matters, including matters related to SWM. Issues related to cleanliness, current waste collection contract with MDM, management of bulky waste, including construction waste and the need for the resort operators to do their part to ensure proper waste management were raised.

The second beach clean-up was also held in conjunction with the event.
Island beach clean-up

To raise the awareness on beach cleansing for a broad range of stakeholders and visitors, 2 beach-cleaning gotong-royong events were conducted at the island. The first clean-up was conducted during the launching event on 14th March 2009 with the participation of 60 students. The second event was conducted in conjunction with the “Open Day for Resort Operators” event on 20th August 2009. 40 students from Sekolah Menengah Kebangsaan (SMK) Seri Serating in Marang and MDM staff have participated in the event.

Island reef clean-up

Annually, TREVICOSTA organises a reef clean-up campaign, typically held immediately after the monsoon season when most of the oceanic waste have accumulated on the reefs. For the year 2009, the event was coordinated with the “Friends of Pulau Kapas” campaign. The exercise was held in conjunction with the annual Swimathon on Pulau Kapas on 9th April 2009. 30 volunteer divers from the island's dive centre, civil defence and police staff and tourists visiting the island on the day have participated in the reef clean-up. Divers were given reusable mesh trash-bags fitted with the campaign logo and asked to collect solid waste accumulated on the seabed, except if corals were found to be growing over it. More than 2 tonnes of trash was collected from the seabed, including broken fishing nets, plastic bottles, batteries, ropes, iron bars, glass and others. At the end of the exercise, participants were treated to a barbeque dinner and were issued with certificates of participation.

The task-force subsequently decided that reef clean-up should be made a continuous activity. For this purpose, 100 reusable mesh trash-bags with campaign logo were distributed to resorts and dive operators. These were to be used by the guests of the resort / dive operators during snorkelling trips. After returning from an excursion, the mesh trash-bags would be returned to the resort operators. Extra mesh bags were passed to the Department of Marine Parks.
“Gift-for-Waste” programme

To further increase the awareness on beach and reef cleanliness, a “Gift-for-Waste” programme was organised. The idea was to encourage visitors to adhere to appropriate waste disposal behaviour by providing them with free mystery gifts (key chains or colouring books) when they disposed of waste at the designated garbage bins. In order to attract as many people as possible, the programme was conducted on selected weekends where there were many day-trippers and also during the school holidays. A total of 4 campaigns were held during the 10-day programme. The programme received assistance from 30 UMT students who placed “Gift-for-Waste” banners at the designated bins and subsequently, manned the bins, providing information about the “Gift-for-Waste” programme to visitors and distributing the gifts to participants.

Ambassadors of Pulau Kapas

To anchor the ownership of the activities solidly with the local community and enhance the sustainability of the programme, the task force decided to empower the resort and boat operators by appointing them as “Ambassadors of Pulau Kapas”. A number of meetings were held between the operators who have volunteered to participate. Awareness talks for the ambassadors were held by lecturers from UMT during the launch of the “Friends of Pulau Kapas” campaign. The ambassadors have further participated in the open day event for resort operators which were held on 20th August 2009. During the meetings, the responsibilities of tourists and staff on the island to keep the island clean were presented and discussed. Copies of the framed mini-poster titled “Aktiviti Rekreasi-Kod Praktikal” were handed over to the “Ambassadors of Pulau Kapas” for participating in the programme.

Subsequently, the ambassadors were expected to adhere to a certain environmentally-responsible code-of-conduct and to pass on such information to visitors / tourists.
**Colouring book**

A marine educational story and colouring book was developed and illustrated by a local artist. The book held the message to keep Pulau Kapas clean. The storyline followed a green baby turtle being dismayed at a polluted habitat, observing dirty beaches and the irresponsible behaviour of visitors followed by their activities to improve the situation and finally, the turtle being happy to observe the results. It was printed in 1,000 copies of which, 400 were distributed to the children together with crayons and colour pencils during the “Friends of Pulau Kapas” campaign launching event and used as gifts for “Gift-for-Waste” programme as described above. Other copies were given to the resorts and boat operators on Pulau Kapas for distribution to the visitors as well as to the children riding on the boats to Pulau Kapas. By the end of 2009, the entire stock had been distributed.

**Shooting video**

A 15-minute educational video on the effect of waste on marine life and the environment was produced for the general public. The video was produced by the Information Technology (IT) Division of MDM in collaboration with an external video producer which included footages of the “Friends of Pulau Kapas” launch. The video will be used for future cleanliness campaigns on the island following the completion of the “Friends of Pulau Kapas” campaign.

**Preventing the accumulation of bulky waste on Pulau Kapas**

To address the second objective and establish a functional bulky waste management system for the island, the task force decided to propose a system for collection, storage and periodical removal of bulky waste from the island.

At the project start, there was no system for managing bulky waste at the island. Large amounts of bulky waste were produced from renovation works on the resorts and from replacement of furniture and appliances, etc. Since the waste contractor only handles the domestic waste; the bulky waste was reused, burnt or dumped in secluded areas around the island or at the premises of the resorts themselves. The dumped bulky waste has, over the time, accumulated to become an eye sore as well as contributing to propagating mosquitoes’ breeding and subsequently, increasing the risk of mosquito-borne diseases.

An interview survey conducted with 6 resorts prior to the commencement of the initiative had revealed that most resorts (5) agreed that improved management of bulky waste, especially construction waste was required and a majority (4) were willing to pay more for an improved waste collection and disposal system.
The task force decided that the activities directed towards proper management of bulky waste should consist of 4 main components.

1) Establishing a shelter for temporary storage of bulky waste on Pulau Kapas to accommodate the bulky waste from generation until transfer from the island.

2) Cleaning Pulau Kapas for previously accumulated bulky waste by organising an initial island wide clean-up programme as well as providing transportation for its removal and disposal at the landfill in Marang. This was done in order to “zero-set” the bulky waste problem before introducing the new system.

3) Establishing a system for continuous transfer of bulky waste from the resorts to the shelter and periodical transfer and disposal of the waste to the mainland.

4) Allocating the roles and responsibilities for managing the new bulky waste management system between the authorities, resorts and waste contractors.

In February 2009, MDM identified a site on the island for the bulky waste shelter, just behind the beach, close to the island jetty. The site was inspected by the local stakeholders during the launching of the “Friends of Pulau Kapas” campaign on 14th March 2009. The stakeholders agreed to locate the shelter at the proposed site. A contractor was appointed in early August 2009. Construction was commenced in mid-August and was completed by the end of September 2009. The shelter was built at 15ft long, 15ft wide and 16ft high with light metal roofed-structure with easy access from the side facing the beach.

Cleaning of Pulau Kapas for previously accumulated bulky waste was carried out as an island-wide clean-up campaign. The clean-up campaign took place at the end of 2009 and the accumulated bulky waste was subsequently removed from Pulau Kapas by the end of December 2009, after the holiday season ended. This schedule was selected to reduce the impact on the tourism activities to a minimum. However, at the same time, it also imposed obstacles for carrying out the activity due to unstable weather conditions during the monsoon season. The weather caused the boat transfer to the mainland to be postponed for a number of times before it eventually succeeded. Most of the clean-up campaigns was carried out by the waste contractor over a period of 10 days, supervised by MDM staff. The campaign resulted in more than 5 tonnes of bulky waste being collected and removed from the island. The waste was transferred to the Marang landfill. The boat had to make 5 trips to the mainland with full load to transfer the waste.
At the same time when the bulky waste shelter was constructed and the previously accumulated bulky waste on the island was removed, the allocation of roles and responsibilities for the future on-going bulky waste management between the authorities, resorts and contractors were discussed at a meeting among the parties on 13 December 2009.

MDM informed that operating licenses would be amended to include mandatory bulky waste disposal requirements in the future. The participating resorts agreed that establishing a communal bulky waste shelter for storing bulky waste from all resorts and organizing a common place for transfer and disposal of the waste would contribute to reducing the cost of disposing bulky waste for each resort. Subsequently, MDM agreed to assume responsibility of removing bulky waste from the island, provided that it had been appropriately stored by the resorts at the bulky waste shelter.

The operating licenses of the resorts were then looked into by MDM under objective 3.

**Strengthening waste management services and operations**

To address the third objective, i.e. to strengthen the regulatory and contractual requirements imposed by MDM on the waste contractors and the waste generators (the resorts), a technical cooperation between MDM and the staff of DANIDA, Solid Waste Community Initiatives Fund was organised.

**Solid waste collection contract**

A meeting between MDM and Solid Waste Management Component (SWMC) to identify limitations and weaknesses in the current regulatory and contractual system and to recommend on how these could be improved was held on 8th July 2009. The contract conditions for the SWM contractor for Pulau Kapas and the licensing conditions for the resorts on the island were targeted for improvement. The intention was to develop draft contract and draft licensing conditions that could be used as an inspiration for other Local Authorities in-charge of similar resort islands.
The first draft improved contract for waste collection from the island was prepared in October 2009. The draft contract included:

- Specification of the duty to use appropriately-sized boats for waste collection to avoid any risk of waste spillage in the sea.
- Clear and unambiguous description of the collection services to be provided, including frequency and the cleanliness of the sites after collection, making it easy for the enforcement officers from the council to monitor the performance of the contractor.
- On-site inspection of the services by the enforcement officers on a regular basis.
- Performance-based payment of the contractor, implying deduction in payment in case of non-performance.
- Post monsoon general clean-up of domestic waste.
- Collection of bulky waste once a year with MDM providing the logistics and with the help from the resort operators in undertaking the finances.

An improved contract was finalised the following month and brought into use for the 2010 tourism season.

**Licensing conditions for resorts**

The improvement of solid waste contracting was followed by a review of the current licensing system for resort operators. The establishment of a bulky waste shelter was to provide the resort operators with necessary infrastructure for current removal of bulky waste as and when it was generated. However, it needed to be ensured that the resorts actually will utilise the facility. At the same time, it also needed to be ensured that the resorts will manage their domestic waste in-line with the new and improved requirements for the waste contractor. This was discussed during the meetings between MDM and the resort owners on 13th December 2009 where the parties agreed that MDM should formulate standardized licensing conditions that required the resorts to:

- Undertake proper handling of domestic waste, including usage of appropriate bins
- Ensure domestic waste was properly managed throughout the year, including the monsoon season where SWM services were not provided. Bulky waste were placed at a suitable site for transfer by the waste contractor to bulky waste shelter.
- Contribute to payment for bulky waste services.

Draft licensing conditions were specified in early 2010 and it was expected that they will be discussed with the resorts and implemented during the course of 2010.
Outputs and results

Pre-project and a post-project awareness surveys were carried out by the RE to measure the impact of the project. Questionnaires were distributed to island visitors, consisting of 3 main categories of questions:

1. Purpose and duration of stay on the island
2. Waste issue on Pulau Kapas
3. Waste management practices

Regarding the waste issues, the respondents were requested to rate the answers from 1 (least serious) to 4 (most serious). The subjects included the following:

- Waste issues (public littering, bulky waste, insufficient disposal facilities, etc.)
- Contributors (resort / boat operators, restaurants, day-trippers and overnight tourists)

Regarding the waste management practices, the respondents were requested to rate the answers from 1 (very bad) to 5 (very good) and 6 (not sure). The subjects included the following:

- Seriousness of littering issue
- Seriousness of bulky waste issue
- Quality of waste collection services

Besides these, they were asked to rate a number of possible causes for littering and for the lack of bulky waste management among the visitors of the island.

Finally the participants had to answer yes / no to the question:

“Are you willing to bring back your waste when you leave the island?”

The pre-project survey took place in October 2008. A total of 20 respondents participated in the survey. A post-project survey was conducted by the end of 2009 but due to the low number of visitors at the onset of the monsoon season, only 8 people responded. The results from the 2 surveys were compared and despite the low number of respondents for the post-project survey, the results suggested that the project activities had positive effect on:
1. Appropriate disposal opportunities (availability of bins)

2. Improved waste collection – Although the waste collection contract has not yet been changed, the seemingly positive impact suggests increased awareness of the contractor

3. Clearer and more visible regulation – This is likely caused by the high number of signages, information posters and stickers placed at strategic sites around the island and on boats

4. Lesser inappropriate disposal of waste from resorts and boat operators

5. Improved waste disposal behaviour amongst visitors. The visitors were more willing to bring their own waste back from the island

The findings indicated that the community initiative has contributed to a cleaner Pulau Kapas. This encouraging outcome might prove to have tremendous positive effect on the island’s reputation as a clean and neat place to visit. It may be seen as an example of how waste management through direct community engagement can be successfully implemented and provide improved esthetical and environmental living conditions.
Lessons learnt and sustainability of the programme

One of the most important pre-conditions for a successful outcome of a community-based waste management initiative is an effective engagement of all involved stakeholders. In this project, the key stakeholders were:

- MDM
- Resort and boat operators
- Waste collection contractor
- Local nature clubs and associations (MNS and SLAM Rescue Divers)
- Mainland schools where the students often visit the island
- Other visitors to the island

The project identified the most pertinent constraints for proper waste management on Pulau Kapas and these were mostly caused by quite simple inadequacies that could be overcome by reasonably simple and cheap means.

The biggest advantage of operating at community level was that most of the progress was achieved with very modest financial means. Most of the activities could easily be replicated on other islands as long as there is a well-defined entity with the responsibility to drive the process. For most private stakeholders whose businesses were dependent on well-functioning waste management (e.g. resort and boat operators), willingness to participate in the process at a voluntary level were often present and many were willing to pay a certain additional fee for proper waste management service, provided that the service is effective and reliable.

One of the most important pre-project constraints for proper SWM on the island was the limited networking between key stakeholders such as MDM, resort / boat operators and the waste collection contractor. The lack of requirements on proper waste management in the business licences for the resort operators and in the contract for the waste contractor combined with the limited awareness of environmental rules and regulations was another important constraint. Networking between key stakeholders and provision of clear guidelines, code-of-conduct, rules and regulations for all stakeholders were critical for a successful outcome of any such initiative.

Many day-trippers and overnight visitors often exhibit negligent or careless behaviour which suggested that they lack the understanding of proper waste disposal and/or are unaware of the local waste management system. Many visitors also seemed to litter because they believed they have the right to do so as someone will clean up after them anyway. The experience from this project suggests that awareness-raising can have significant impact on waste practices. Whilst tourism service will inevitably produce waste which is in need of proper disposal, raising the awareness among visitors about code-of-practice can have profound positive effect on the way in which waste management unfolds on the island. In this context, the most important lesson learnt was that it is relatively easy to make visitors comply with proper waste disposal behaviour provided that:
1) Facilities, such as bins are easily available.
2) Code-of-practice message is promoted and reiterated by committed ambassadors of the island.
3) Rules and regulations are enforced.

While all points are important, the role of the ambassadors of Pulau Kapas was particularly critical. Without a concerted commitment and effort by individuals that offer and operate tourism activities on the island, such initiative will never become a success. Not all resort owners have participated in the awareness talks and the open day event for resort operators because some preferred to have the Local Authority to make individual visits to hear out about specific problems. However, individual approaches to a common waste management issue may not lead to a meaningful outcome. From a financial perspective, it is also very important that resort operators establish a common waste management system. A common system will reduce the cost incurred by each operator compared to if each operator has to operate its own waste management system. This should be a welcoming incentive for resort operators that had already professed their willingness-to-pay more for a functional bulky waste management system.

In spite of the constraints, the project managed to achieve its objectives by facilitating communication between island stakeholders and the authorities. Even without the new regulations, contracts and licensing conditions in place, the awareness-raising instigated by the initiative seems to have had a very positive impact. In order to make this progress sustainable in the long-term, it is crucial that the key stakeholders continue their networking and fruitful collaboration. With the bulky waste shelter in place, plenty of waste disposal bins deployed by MDM and the waste contractor offering regular waste collection and disposal services, the most important infrastructure was already in place for a proper waste management system. It was all up to the resort and boat operators to organise themselves and utilise the facilities and services provided.

**How to ensure sustainability**

1) Maintain commitment to public participation as well as networking and collaboration between key stakeholders. This could possibly be accomplished by maintaining the task force or converting it to a management committee.

2) Appoint responsible stakeholder representatives to maintain the momentum of waste management in Pulau Kapas. This includes maintaining education / awareness material and repeating educational workshops for resort / boat operators, campaigns for visitors and practical beach / reef clean-up at strategically important times of the year.

3) Disseminate the project concept to other similar islands.

4) Secure funding to continue effective waste management, maintenance / replacement of bins, bulky waste shelter and recyclable mesh bags. Considering the fairly modest capital outlay needed for such a significant benefit for local communities, this should be a manageable task.
Bibliography


• Clean beach, clear blue water and lovely corals and paradise have returned to Pulau Kapas