OVERVIEW OF ENVIRONMENTAL EDUCATION AND AWARENESS PROGRAMMES IN SABAH

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Abstract

The importance of environmental education (EE) and awareness in societies is recognised globally. Environmental education is increasingly being promoted as a tool in managing our environment. In Sabah, various governmental and non-governmental organisations promote and implement environmental education and awareness programmes. Among others, these programmes include the ‘Sekolah Rakan Alam Sekitar’, Sabah Environmental Recognition Night, exhibitions, talks, camps, seminars, workshops, roadshows, drawing or colouring contest and radio talk.

This paper presents an overview of the programmes implemented by various organisations, the establishment of the Sabah Environmental Education Network (SEEN) and challenges encountered in promoting and implementing environmental education in Sabah.
1.0 INTRODUCTION

In the 20th century, serious environmental problems such as pollution triggered much concern about the relationship between humans and the environment (Uitto et al). In 1978, the UNESCO (United Nations Educational, Scientific and Cultural Organisation) Tbilisi Declaration mentioned the need of widespread use of environmental education (EE). During the Tbilisi Convention, environmental education was defined as:

‘a process of developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones’.

There is no one universal definition of EE but ultimately, it focuses on knowledge, skills and the ability of individuals to find solutions to environmental problems. The following dimensions are adopted by the Sabah Environmental Education Network (SEEN) on EE:

- Education about the environment through the understanding of concepts and knowledge of the environment;
- Education in, through or from the environment involving the promotion of direct experience; and
- Education for the environment that is, the development of values, skills, knowledge and processes necessary to form judgements; to participate in decision-making and to take appropriate action in addressing environmental issues and problems.

EE in today’s society is very much relevant due to the escalating environmental problems that require immediate attention. The need to continuously educate the public on environmental issues and promote action to minimise damage on the environment is vital. The task is monumental but efforts must be stepped up and multiplied to ensure the environment receives the protection it deserves.

The importance of EE is further reiterated in Chapter 36 of Agenda 21 which stresses on the following:

‘Education, including formal education, public awareness and training, should be recognised as a process by which human beings and societies can reach their fullest potential. Education is critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. Both formal and non-formal education are indispensable to changing people’s attitude so that they have the capacity to assess and address their sustainable development concerns’.

This paper presents an overview of the programmes implemented by various organisations, the establishment of the Sabah Environmental Education Network (SEEN) and challenges encountered in promoting and implementing EE in Sabah.

2.0 ENVIRONMENTAL EDUCATION IN MALAYSIA

The importance of EE in Malaysia is highlighted in the National Policy on the Environment 2002. One of the key areas of the Green Strategies outlined in the policy is ‘Education and Awareness’. The emphasis on Education and Awareness is in line with the recommendations of Agenda 21. Among the strategies for Education and Awareness are:

- To devise and introduce comprehensive formal and informal EE and training strategies and information dissemination programmes.
- To integrate environment and development into educational activities from school to tertiary institutions of which relevant method and materials will be developed.
- To establish national centres for excellence for interdisciplinary research and education in environment and development.
• To review education curricula at all levels to ensure a multidisciplinary approach with environment and development issues.
• To actively promote non-formal education activities at local and national levels.
• To strengthen the role of media in disseminating environmental information.

Generally, the promotion of EE in this country is focused towards addressing environmental challenges such as littering, water pollution, air pollution and the degradation of biodiversity.

Various federal and state government departments, the private sector, educational institutions and non-governmental organisations (NGOs) are actively promoting EE in both formal and non-formal arenas. The target groups are from all levels of society - teachers, students, government agencies, developers, restaurant operators, industries/factory owners and the general public.

In terms of formal education, the Ministry of Education has developed a curriculum for EE and has implemented various teaching and learning strategies to enhance environmental awareness and internalise values on the importance of environmental protection. In line with the National Education Policy, ‘Environmental Education across the Curriculum’ was introduced in both primary and secondary schools in 1990s. EE is infused in each subject in schools, rather than taught as a single subject.

Non-formal EE activities for various target groups are also actively planned and implemented such as environmental camps, talks, exhibitions, quizzes, workshops, seminars, tree-planting and radio shows. Environment-related events such as Malaysia Environment Week (21-27 October), Earth Day (22 April), World Environment Day (5 June), Wetlands Day (2 February) and Water Day (22 March) are also celebrated each year.

3.0 ENVIRONMENTAL EDUCATION IN SABAH

For a successful implementation of EE programme or campaign, the following principles are essential (PAC BBEC 2002):
• Focused targets
  o There must be goal, specific targets, milestones and a set of activities
• Flexible strategy
  o Regular reviews and monitoring
• Effective communications
  o Prepare effective communication strategies
• Regular reporting
  o Set up reporting measures
• Strong leadership
  o Strong staff leadership (knowledge, skill, commitment)
• Firm funding
  o Available funding
• Evaluation, monitoring and lesson learning
  o To improve further, evaluation, monitoring, constant learning and adaptation are required

When selecting the type of activity, the characteristics of the target groups must be considered carefully, as follows (PAC BBEC 2002):
• Choice of language
  o Local languages and informal Bahasa Malaysia are most effective in the rural areas, and Bahasa Malaysia, English and Chinese in urban areas
• Level of reading, verbal and visual literary
  o The levels of reading, verbal and visual literary must be studied to enable the appropriate use of printed information, verbal communication and graphics.
Straightforward illustrations and colourful printed information are more attractive as well.

- Traditional media
  - Media such as radio and television should also be considered because they are most effective in rural area and urban area, respectively.

There is no single best methodology for each target group. It is best to design programmes according to the wider context namely theme and message, purpose of activity, expected outcome, budget and resources available. Target groups need to be specifically defined as well – for example, Primary 5 students in Kota Kinabalu rather than just students.

Based on the findings and recommendations of the Studies of EE in Sabah carried out in 2002 by the Public Awareness Component (PAC) of the Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme, the following table outlines some of the target groups and suggested methodologies for EE:

<table>
<thead>
<tr>
<th>TARGET GROUP</th>
<th>SUGGESTED METHODOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural community</td>
<td>Visit, talks, drama, role play, poster, community training, competition among students, religious gatherings, mobile EE units, mobile health units, mobile libraries, mobile internet units</td>
</tr>
<tr>
<td>Environmental NGOs</td>
<td>Workshops, seminars, field trips, training by relevant experts, co-organising activities, grants giving</td>
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<tr>
<td>Editors of local papers</td>
<td>Personal appointment, preparation of series of articles</td>
</tr>
<tr>
<td>Columnist, feature writers and reporters of local newspapers</td>
<td>Workshops, seminars, field trips</td>
</tr>
<tr>
<td>Local Radio DJs</td>
<td>Provision of information materials, factsheets, magazines</td>
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<tr>
<td>Private sector – CEOs, senior managers, officers</td>
<td>Printed materials, AV talks, trips, seminars</td>
</tr>
<tr>
<td>Professional bodies</td>
<td>Printed materials, AV talks, workshops, seminars</td>
</tr>
<tr>
<td>Members of State Assembly, Members of Parliament</td>
<td>Invitation to special events, newsletter, emails</td>
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<tr>
<td>Political leaders and workers</td>
<td>Dialogue, meetings, workshops</td>
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<tr>
<td>Religious leaders/bodies</td>
<td>Courtesy calls, meetings, invitation to sit in working group or relevant committees</td>
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<tr>
<td>Teachers’ trainers/lecturer</td>
<td>Provision of easy-to-use teaching aids (e.g. EE education kits), talks, training, field trips</td>
</tr>
<tr>
<td>Principals/Headmaster</td>
<td>Through District Education Office or HQ. Special functions and ceremonies</td>
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<tr>
<td>Teachers</td>
<td>Provision of teaching aids, training, workshops, use of education centres, field trips</td>
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<tr>
<td>Tertiary students</td>
<td>Field trips, talks, workshops</td>
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<tr>
<td>Teacher trainees</td>
<td>Talks, training, workshops, field trips</td>
</tr>
<tr>
<td>Government officials – departmental heads</td>
<td>Invitation to special events, newsletter, emails, co-organising activities, grant giving, implementing agency</td>
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<tr>
<td>Government staff</td>
<td>Briefings, newsletter, emails, printed materials, co-organising activities</td>
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<tr>
<td>Kindergarten children</td>
<td>Trips, visual, games, story book, sticker</td>
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<tr>
<td>Teenagers</td>
<td>Celebrity/idol as ambassadors for conservation</td>
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<tr>
<td>Youth</td>
<td>Competition for designing animated flash clips and creative SMS messages</td>
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<tr>
<td>Students (upper secondary)</td>
<td>Camps, field trips, talks, competitions, career guidance</td>
</tr>
<tr>
<td>Students (lower secondary)</td>
<td>Trips, talks, games, visual, competitions</td>
</tr>
<tr>
<td>Students (upper primary)</td>
<td>Trips, talks, competitions, visual, games, story books,</td>
</tr>
</tbody>
</table>
TARGET GROUP | SUGGESTED METHODOLOGY
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Student (lower primary) | Trips, visual, games, story book, stickers
Local visitors/day trippers | Conducted activities, interpersonal communication, guided walk, exhibitions, brochures
Housewives | Mass media
Forest Management Units (owners, managers, workers), communities around forested area | Training in sustainable forestry management, wildlife management issues, wildlife-human conflict

In Sabah, EE programmes and activities are actively planned, promoted and implemented by various organisations. Government and NGOs implement EE programmes according to their organisational’s roles, responsibilities and focused areas. To create awareness or used as learning materials, materials such as posters, brochures, CDs, booklets, guidelines, key-chains, bookmarks, t-shirts, caps and calendars are prepared and published by various organisations.

EE activities and programmes by various organisations are further elaborated in this section.

### 3.1 Environment Protection Department (EPD)

One of EPD’s objectives is to “enhance public awareness on the importance of environmental protection and conservation’. The strategy to achieve this objective is to undertake concerted and integrated environmental education and extension programmes with active participation of relevant stakeholders which include the public and private sector, NGOs, business community and the public at large in order to attain maximum impact on target groups.

Programmes
EPD has organised various EE programmes since it was established in 1998. EPD’s target groups are from all levels of society namely the general public, students, teachers/lecturers, developers, villagers, government departments, NGOs and the private sector. Its programmes include talks, exhibitions, seminar, workshop, recycling, radio talks, quiz, drawing and colouring contests, publication of articles in newspapers, cleanliness activity and many more. Information disseminated during the programmes range from background of the department, environmental laws to environmental issues in Sabah. Environment-related celebrations such as Malaysia Environment Week, Earth Day and World Environment Day are also commemorated by EPD.

One of the major EE programmes organised by EPD is the Sekolah Rakan Alam Sekitar (SERASI) Programme, a state-wide programme targeting all schools in Sabah. The idea of this programme was initially proposed by the Department of Environment (DoE) and enhanced together with EPD. It started in 2003 of which was only opened to government-assisted secondary school in Sabah. From 2004 onwards, participation was opened to both primary and secondary schools.

The objectives of this programme are as follows:
- To enhance awareness on the importance of environmental protection and conservation in schools;
- To instil positive and caring attitude for the environment amongst the students, teachers and staff as well as the local communities;
- To encourage innovation towards the creation of a school’s environment that emphasises on environmental protection and conservation; and
• To acknowledge the continuous efforts by schools in promoting environmental education programmes.

SERASI is jointly organised by EPD, DoE, Sabah Forestry Department, Science and Technology Unit, Environmental Action Committee Sabah, Sabah Education Department, Sabah Wetland Conservation Society and SHELL Malaysia. Through this co-operation, funding and manpower are shared among the organisers. SERASI is implemented annually throughout the year in conjunction with the Malaysia Environment Week.

In this programme, schools are judged based on the main criteria as follows:
• Environmental Management
• Environmental Activities
• Greening of Schools
• Cleanliness and Beautification of School
• Environmental Innovation

The judging of SERASI is carried out at three levels, namely:
• Level One: Nomination of primary and secondary schools by District Education Offices based on the quota given for each district.
• Level Two: First round of judging of nominated schools.
• Level Three: Final Judging of 40 finalists (20 primary and 20 secondary).

Apart from the criteria above, interviews are carried out among the headmaster/principal, students and teachers of schools that have successfully entered the final round. Interviews include questions on the level of commitment, involvement, action plans for EE in schools and involvement of local communities in the school’s programmes.

In 2006, Wira SERASI was introduced in which schools that have won since 2003 are eligible to participate. These schools are judged independently from the finalists.

SERASI has been successfully implemented each year but to continuously improve, lessons learned from previous years are taken into consideration as follows:
• Commitment of core staff directly involved in planning, preparation and implementation is vital.
• Support and guidance of top management in programme implementation is important.
• Even the smallest detail must be given due attention. Therefore, a detailed checklist is required.
• Communication with District Education Officers must be established through the Education Dept. A thorough briefing to officers on SERASI criteria must be carried out.
• A thorough briefing to 2nd level judges is also important. The co-ordinator of 2nd level judges must always be in contact with Secretariat for updates, etc.
• The availability of manpower and logistics in the 2nd level judging is crucial, especially when there are remote schools to be visited. Plan schedule accordingly (e.g. avoid school holidays/public holidays, exam period, etc)
• Deadlines of 1st and 2nd level judgings must be met accordingly to avoid limited time for final level judges to visit finalists.
• The final level judges must plan their schedule and logistics to visit the finalists accordingly. Judges should meet and interview head of schools during visits. Photos of all angles must be taken accordingly.
• Participation of schools through report submission was not as successful as expected in the SERASI 2003 programme. Therefore, from 2004 onwards, the approach of participation was revised using the 3-level judging approach.
• Judging criteria and marking system were revised and greatly improved based on judges’ experience on the ground (some criteria were not practical when observed on the ground).
• The preparation of future SERASI programme must be done immediately after post-mortem of previous programme.
• Budget must be agreed by organisers at the earliest stage possible.
• Preparation for awards ceremony must commence about 6 months in advance.

A general evaluation of overall EPD’s EE programmes is as follows:
• Responses of EE programmes from target groups are encouraging (e.g. increased number of invitations by more than 15% to conduct talks and exhibitions during the period of 2004-2006 compared to 2001-2003)
• Co-operation among government agencies, private sectors and NGOs has increased (e.g. through the establishment of SEEN in 2005)
• Increased number of schools applying for environmental grants
• Increased public awareness on environmental protection and roles of EPD (e.g. through increased public complaints on environmental problems)

3.2 Department of Environment (DoE)

One of DoE’s strategies to achieve its vision to conserve uniqueness, diversity and quality of the environment is through the promotion of EE and awareness and also public participation.

Programmes
DoE Sabah implements various EE and awareness activities such as talks, exhibitions, nature games, nature art, radio talks and quizzes, environmental camps, seminars, workshops and dialogues. Its target groups are very similar to those of EPD’s. Environmental information disseminated by DoE include open burning, palm oil regulation, composting, smoke level from vehicles and others.

It is also a co-organiser of the SERASI programme which is implemented annually in Sabah. Apart from SERASI, DoE co-ordinates a national-level environment-friendly school programme called Sekolah Lestari for Sabah. Sekolah Lestari is similar to SERASI in which it promotes environmental awareness and actions among students.

A general evaluation of DoE’s EE initiatives is as follows:
• Through the implementation of environmental camps, students’ knowledge on environmental and pollution issues in Malaysia has increased. They also know which department to contact in the event when pollution occurs.
• Invitation to conduct environmental talks has increased by 100% in 2006 compared to 2003.
• Increased number of grant applications received from schools to implement EE activities.

3.3 Sabah Forestry Department (SFD)

SFD conducts various environment-related programmes, highlighting sustainable forest management as its core business. One of the units in SFD, the Environmental Education Unit, is involved in educational programmes. The EE Unit manages the Rainforest Discovery Centre (RDC) in Sepilok, Sandakan. RDC was established in 1996 to enhance public awareness on the uniqueness and importance of forests in Sabah.

Programmes
RDC offers various EE activities and conducts courses such as Introduction to EE, Residential Course on EE, Environmental Interpretation Course, and Designing, Organising and Implementing EE Programmes. The main goal of the RDC EE programmes is to bring about positive change in the attitudes and behaviours of the public towards the forests and the environment as a whole through interpretation and EE. RDC’s main target groups are school students, teachers and the public in Sandakan.
RDC also celebrates World Environment Day (WED), Forestry Day and Malaysia Environment Week (MEW) annually. MEW has been celebrated since 1998 especially for the community in Sepilok. Various activities such as drawing, colouring, bicycle rally for the environment and jungle trekking have been organised. For WED, activities organised include environmental camps, mural drawing, environmental seminars, composting and recycling.

RDC uses simple questionnaires, face-to-face question and answer sessions and observations to generally evaluate its EE programmes. During courses for teachers, RDC identifies resource teachers who are potential facilitators for future programmes. This is one of the ways to keep the teachers’ enthusiasm going after the course. Post-course initiatives by teachers such as greening the school, starting recycling programmes at school and setting up gardens are considered as indicators that the teachers’ courses have achieved the intended objectives to some extent. Some students who have visited RDC have indicated that their visits to RDC have helped them decide which course to take up at the university e.g. science related courses.

3.4 Education Department

Programmes
The State Education Department with its various focus areas in education is also actively promoting EE in all schools. The Environmental Education across the Curriculum Programme is an effort by the Education Ministry to educate students in this country on EE and inculcate environmental responsibility in each student. EE is not taught as a single subject but infused across the subject board to ensure that students are made aware and given the knowledge and skills on environmental issues.

In this programme, there is a holistic emphasis on environmental matters in all subjects. Emphasis such as this is not exam-oriented although environment-related questions will be asked during examinations. When teaching is exciting, fun and focused on students, it becomes more effective in which values can be internalised better. This is one of the aims of EE across the Curriculum.

Apart from implementing the programme above, the Education Department also co-organises EE programmes such as SERASI, activities under the Public Awareness Component of the Bornean Biodiversity and Ecosystems Conservation (BBEC) Programme, Sekolah Lestari, Environmental Science Quiz, 3K Competition (Kebersihan, Keceriaan dan Keselamatan), environmental workshops and courses, and others.

A survey carried out in 2001 related to the implication of the EE across the Curriculum Programme in 31 selected schools in Malaysia found that the level of awareness and attitude of students on the environment is high. The level of awareness and attitude of students is interconnected with the teachers’ teaching practices, understanding and commitment.

3.5 Sabah Nature Club (SNC)

SNC is an EE scheme that was officially launched in 1988. It was initiated by Yayasan Sabah with co-operation from the State Education Department. It has a non-formal approach that encourages active outdoor and field activities. The objectives of SNC are:

- To promote interest and knowledge about wildlife, forest and the environment among the youth in Sabah
- To foster concern to protect the fauna and flora and undisturbed examples of the state’s natural heritage
- To increase awareness of the economic, cultural, scientific and aesthetic values of Sabah’s flora and fauna
• To provide opportunities to acquire values and skills needed to protect and improve the natural environment

Membership of SNC is opened to students and teachers in primary and secondary schools, and also higher institutions. Approximately 39,000 accumulated members have registered since SNC’s establishment in 1988. At present, 180 schools have registered under SNC. There are over 5000 active members throughout Sabah.

Programmes
Nature courses, talks, bird watching, workshops, slide and video shows are among the activities organised by SNC. Specifically, the Nature Orientation Camps at Danum Valley Field Centre and Maliau Basin Studies Centre are conducted twice a year. Schools will be selected randomly but priority is given to those who have renewed their membership. The camp usually lasts 5 to 10 days and is designed to include wilderness activities that combine outdoor adventure and environmental awareness themes.

3.6 Sabah Wetland Conservation Society

KK Wetland Centre (formerly known as the Kota Kinabalu City Bird Sanctuary) is managing the bird sanctuary in Likas on behalf of the Sabah Wetland Conservation Society. KKWC is a reserved 24 hectares of mangrove ecosystem that is a bird sanctuary for resident and migratory birds and also functions as an EE centre on the mangrove ecosystems and its inhabitants.

Programmes
The objective of KKWC’s EE programmes is to raise the level of awareness among the public, especially students, on the importance of wetlands and the need for their conservation. Exciting activities offered at the centre include slide presentation, talk, video show, interpretative walk along the boardwalk, mud walk, environmental and nature games, bird watching and mangrove replanting.

KKWC also co-organises SERASI, the radio talk show during Malaysia Environment Week and other EE programmes organised by other organisations.

3.7 Science and Technology Unit (STU)

STU is one of the lead agencies involved in the Bornean Biodiversity and Ecosystems Conservation Programme (BBEC), a five-year programme implemented by the Sabah State Government and Universiti Malaysia Sabah, and assisted by the Japan International Cooperation Agency (JICA). BBEC Programme in Sabah involves many federal and state departments and agencies, non-governmental organisations and learning institutions. It was launched on 26 February 2002 for a period of five years and will end in 2007. The BBEC Programme aims towards conservation of the biodiversity and ecosystems in Sabah and their sustainable development. The aim of the programme is achieved through the integration of four components namely:

• Research and Education
• Park Management
• Habitat Management
• Public Awareness

Besides promoting science and technology among students, STU is also heading the Public Awareness component of BBEC. Under the Public Awareness component (PAC), five target groups have been identified namely policy makers, developers, teachers, journalists and non-environmental NGOs. PAC is also currently formulating an Environmental Education Policy for Sabah.
3.8 Environmental Action Committee (EAC)

EAC is a smart partnership between the Sabah State Government and the people of Sabah to work together towards environmental awareness. EAC has organised various environmental seminars, forums, dialogues, camps, workshops, exhibitions, talks and site visits throughout Sabah targeting all levels of society. EAC is a co-organiser of SERASI.

One of its major events organised once in two years is the Sabah Environmental Recognition Night (SERN). This event is organised to honour those who excel in their services and contributions to the environment in Sabah. Various awards are presented during SERN.

3.9 Others

Department of Irrigation and Drainage (DID)

DID’s main area of expertise is on water resource management. Its EE-related programmes are focused on water resource management. Two programmes that have been implemented are as follows:

- Development and implementation of community based in the restoration of urban drains and river water quality.
  - Monitoring system
  - Awareness programme
  - Restoration

- Development and implementation of community based restoration and rehabilitation of the water bodies in the Salut-Mengkabong river basin.
  - Monitoring system
  - Awareness programme
  - Restoration

Kota Kinabalu City Hall (KKCH)

In terms of environmental protection, KKCH highlights the importance of good waste management practices, including recycling, and cleanliness. Various programmes on cleanliness have been implemented including the City Friends Programme in which any concerned citizen living around Kota Kinabalu can become a member to assist KKCH to improve the level of cleanliness in the city.

Sabah Parks

Sabah Parks, a sister agency of EPD, promotes nature education in their respective parks all over Sabah. It is also involved in the BBEC Programme as the lead agency of the Park Management component.

Sabah Fisheries Department

In terms of public awareness, the Sabah Fisheries Department focuses on the long term sustainable utilisation of marine aquatic living resources. It also highlights the future of fishing as an industry that depends on ensuring sustainable uses of the marine environment. The department's methods of disseminating information are through class training, audiovisual, media, observations, exhibitions, extension work, dialogues and so on, to promote greater awareness, educate good practice of fishing and promote sustainable development of fishery production. It also works together with other agencies in promoting marine pubic education programmes.

Sabah Wildlife Department (SWD)

SWD is responsible for implementing and administrating the Sabah Wildlife Conservation Enactment 1997. Under this Enactment, the department conserves and regulates wildlife
utilisation in Sabah and manages a number of protected areas. SWD’s EE programmes focuses on wildlife conservation.

**WWF Malaysia (Borneo Programme)**
WWF-Malaysia has been active in Sabah since 1972. To date, WWF-Malaysia has carried out more than 150 projects in Sabah. WWF’s mission is to stop the degradation of the planet’s natural environment and to build a future in which humans live in harmony with nature, by:
- conserving the world’s biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

**Sabah Environmental Protection Association (SEPA)**
SEPA has an important role to play as an NGO in promoting environmental awareness in Sabah. Its target group is the general public and organises talks on various environmental topics such as recycling, managing household waste (including composting) and littering problems.

**Teachers’ Training Institutes**
The Keningau, Tuaran, Tawau and Gaya Teachers’ Training Institutes promote EE to their trainee teachers during one of the training semesters. EE is offered as a component within the teacher dynamics component which is compulsory for students of postgraduate diploma in teaching and other courses of study in the institutes. It is a single credit paper subject which involves 15-hour interaction with the lecturer.

The trainee teachers are exposed to the importance of the environment and how to instil environmental awareness through EE across the curriculum. Other EE related activities are also organised from time to time.

**Malaysian Nature Society (MNS) – Sabah Branch**
MNS promotes environmental awareness amongst school children through outdoor activities, management of nature education centres and publication of EE materials such as children books and magazines.

**Sabah Society**
Sabah Society’s main focus is on promoting conservation. It organises regular field-trips throughout Sabah and talks for members as part of its ongoing/continuous educational programme.

**Universiti Malaysia Sabah (UMS)**
In terms of environmental protection, UMS’ main expertise is on environmental pollution, environmental management, environmental toxicology and coastal and marine resources. Its main target groups are students, the general public and higher learning institutions.

One of the community projects UMS is involved with is the Community Project at Salut-Mengkabong, Tuaran together with EAC, KKCH, DID, Sabah Society and a few other organisations. Various environmental activities have been carried out such as mangrove replanting, cleanliness campaigns, exhibitions, drawing contests and others.

### 3.10 SEEN in Sabah

Due to the many organisations involved in EE implementation as highlighted in this paper, a network known as the Sabah Environmental Education Network (SEEN) was established on 17 March 2005. SEEN was set up to create synergy between the various organisations, in order to build strong co-operation and co-ordination amongst the implementing agents. The aim of SEEN is to enhance environmental communication, education and awareness efforts
in Sabah through networking, co-operation and co-ordination among all relevant organisations. At present, EPD takes up the role as the SEEN Secretariat.

SEEN was mooted during the Seminar for EE Practitioners in Sandakan organised by the Sabah Forestry Department in June 2002. A series of meetings were carried out from then till early 2005 to create a foundation for the establishment of SEEN. 22 organisations became SEEN members during the official launching of SEEN on 17 March 2005. Three organisations joined SEEN later.

The objectives of SEEN are:

- To provide a platform for more cohesive EE programmes and activities in Sabah.
- To provide a platform for training EE practitioners in Sabah.
- To establish an effective network among the public and private sector, and NGOs engaged in EE programmes and activities in Sabah.
- To share expertise, information and other resources in the implementation of EE programmes and activities in Sabah.
- To evaluate the effectiveness of EE programmes and activities.
- To establish networks with local, national and international EE-related organisations.

SEEN’s strategies include:

- To establish a close collaboration among EE-related organisations.
- To establish a Memorandum of Understanding (MoU) between the relevant public and private sectors, and NGOs.
- To compile a comprehensive data of EE practitioners.
- To facilitate the training of SEEN members.
- To establish effective communication channels.
- To undertake collaboration and the pooling of resources (funds, manpower, information) among the members of SEEN.
- Members of SEEN to record, evaluate and monitor the progress of programmes and activities through the compilation of periodic reports.
- To establish close links with relevant local, national and international organisations through the sharing of information, experience and expertise.

As a team, SEEN members have organised a major radio talk and quiz programme during the Malaysia Environment Week 2005. Members also work together to co-organise or co-sponsor programmes from time to time. In this manner, programmes have been proven to be more cost-effective and better managed.

3.11 Challenges of EE in Sabah

The implementation of EE in Sabah is not without challenges. Although more organisations are giving priority to EE as compared to 20 years ago, challenges - whether big or small - remain in this field. Among others, challenges faced by EE implementers are:

- to win broader support for EE
  - To convince other organisations to give more attention and higher priority to EE is still a big task due to the longer period taken to witness significant impacts of EE programmes. However, the precautionary principle must be considered if the environment is to be conserved at its best condition as possible.

- changing people’s attitude
  - An enormous task at hand, changing people’s attitude to be more environmentally friendly is still one of the major challenges in EE. The focus of EE on students as the younger generation and future leaders is a right investment to develop a future of environmentally-responsible society.

- generating action for environment
Creating awareness on the importance of the environment is a challenge that most implementers can now overcome due to the advancement of technology (such as the internet and multimedia presentation) and also through electronic and printed media. However, to generate action for environmental causes is a huge task because not all of those who are aware are willing to act upon their awareness.

- limited funding
  - Some keen EE implementers are faced with limited funding to execute programmes. Although this used to be a big challenge, it can now be overcome through smart partnerships and co-operation among implementing organisations.

- duplication of activities
  - Duplication of activities occurs when implementers execute their EE programmes in isolation. This is another challenge that can be overcome through co-ordination and co-operation.

- lack of skills
  - The problem of limited skills among implementers is being solved through the improved numbers of EE training opportunities available locally and abroad. Sharing of lessons learned is also another solution to this problem.

- lack of co-ordination
  - The lack of co-ordination among implementers is still a challenge but the situation now is much better due to improved communications amongst implementers.

4.0 THE WAY FORWARD

The way forward for EE in Sabah is to steer EE in a more co-ordinated manner at all levels of implementation. The presence of SEEN is hoped to bring EE to a higher level of success in Sabah. Although still at its infancy, SEEN provides an avenue to find better solutions to the challenges outlined earlier. With the spirit of co-operation and full commitment amongst the members, SEEN will be able to fruitfully achieve its objectives and aim to enhance EE in Sabah and ultimately, to provide the protection the environment truly deserves.
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